

**A Compendium of . . .
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(Home-Nursing Simplified and Tabulated)

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BY

N. CORBET FLETCHER

B.A., M.B., B.C.Cantab., M.R.C.S., L.R.C.P.Lond.

Author of "A Compendium of Aids to First-Aid" and "Why and Wherefore in First-Aid"; Lecturer to the Regent Street Polytechnic and to the L. & N.W. Railway Ambulance Centres; Examiner and Lecturer to St. John's Ambulance Association and the British Red Cross Society

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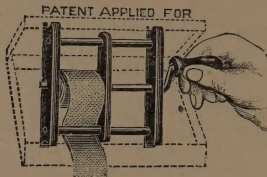
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PREFACE.

THE genius can afford to despise Mnemonic Aids, but the ordinary student usually appreciates them as a means of Study both for exigencies of the examination room and for practical application. Properly prepared, such Aids to Memory serve the useful purpose of systematizing the subject ; and, properly used, they emphasize the teachings of the Text-Book, which they neither pretend nor seek to replace.

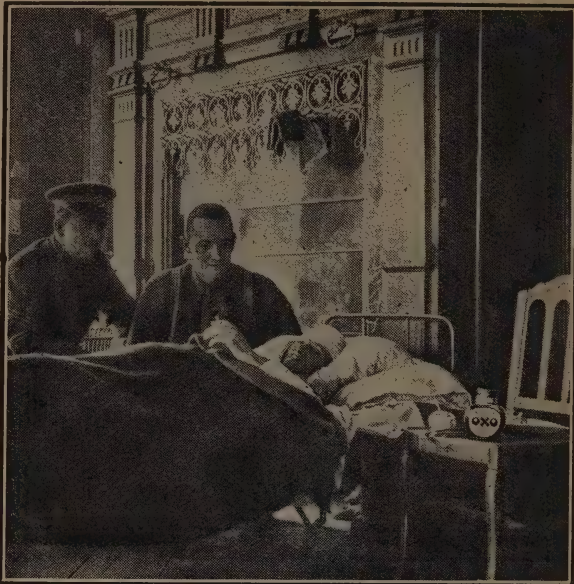
The task of compiling a *Compendium of Aids to Home-Nursing* is not an easy one, because the subject attempts to deal with the vast range of Sickness to which the human flesh is heir, and because this can only be covered by a general statement of the treatment which may prove suitable to the Patient and acceptable to the Doctor-in-charge. It is, therefore, impossible to define the limits of Home-Nursing as accurately and precisely as those of First-Aid, or to arrange the subject systematically under different headings with a scheme for each section, as is done in my *Compendium of Aids to First-Aid*. At the same time, that something may be done in the way of systematizing portions of the subject is proven by the following pages, which are based on the notes of my Lectures in Home-Nursing at the Regent Street Polytechnic, where we recognize the S. J. A. A. Manual as our Text-Book.

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A Compendium of AIDS TO HOME-NURSING.

CHAPTER I.

INTRODUCTORY.

HOME-NURSING is to the sick person what First-Aid is to the injured. It endeavours to instruct lay enthusiasts in the Science and Art of Nursing, which has been defined as the Handmaid of Medicine.

Home-Nursing, however, is handicapped in that it must cover the vast field of possible illness and cannot be regarded as a distinct entity like First-Aid, which has been called the happy hunting ground where Doctor and First-Aider meet together for the patient's good. Again, our choice of action is further limited by the fact that, whereas in First-Aid we must face our difficulties *in the absence of skilled assistance*, in Home-Nursing we practise our art *under the direct supervision of the Doctor*, and when an emergency arises we report at once to him and receive his instructions.

Under these circumstances, the first step in the study of Home-Nursing is to appreciate its Objects and Principles, as well as the duties of the Vital Functions in normal health.

DEFINITION OF HOME-NURSING.

Home-Nursing is the art of attending to the requirements of a sick person during illness for which a fully-trained Nurse is not available. A **Nurse** is one who enters upon a sacred **Contract** to anticipate and carry out these requirements.

Moreover, as in First-Aid, the primary factors on which the Principles of Home-Nursing depend are **Knowledge**, **Commonsense**, and **Experience**, and without these three one cannot hope to master the Principles of the subject or to become a skilful Nurse.

PRINCIPAL OBJECTS OF HOME-NURSING.

Next, we realize that, if we are to obtain Efficiency in Home-Nursing, we must have before us some definite purposes. As in First-Aid we recognize four main objects, so in Home-Nursing also we possess four Principal Objects, though these for the reasons already given are somewhat different.

These Objects are to—

- (1) **Promote** recovery of Patient by all means in Nurse's power.
- (2) **Prevent** onset of preventible complications, e.g., bed sores.
- (3) **Provide** relief for pain, &c., by proper application of remedies.
- (4) **Practise** obedience to each and every instruction of Doctor.

PRINCIPLES OF HOME NURSING.

A skilful Nurse is **TRUE TO CONTRACT**.

The duties of a Nurse are fourfold, because she has to consider her responsibilities towards Patient, Doctor, Relatives, and Herself; although in actual practice her *immediate* care is devoted to the Patient, the Sickroom, and Herself.

A.—KNOWLEDGE makes a Nurse—

- T** **Trusted** by Patient, Doctor, and Relatives.
- R** **Resourceful** in all dealings with Patient and Relatives.
- U** **Untiring** and self-sacrificing for Patient's welfare.
- E** **Encouraging** and sympathetic towards Patient.

B.—COMMONSENSE makes a Nurse—

- T** **Tactful** in relation to Patient, Doctor, and Relatives.
- O** **Observant** in noting Symptoms and Means of Diagnosis.

C.—EXPERIENCE makes a Nurse appreciate the outstanding importance of—

- C Cleanliness**, which applies equally to the Patient, the Sickroom, and Herself—especially in Infectious Illness.
 - O Obedience** to the Doctor's orders, even if his instructions are contrary to her opinion and conception of the condition.
 - N Nourishment**, which, properly prepared and properly served, materially assists the Patient towards recovery from illness.
 - T Temperature** of Patient, which by its fall or rise indicates the progress of the disease, and is recorded by the clinical thermometer.
 - R Rest** and quietude of mind and body, which will affect the course of the illness and favour the return to normal health.
 - A Air**, which is necessary for the supply of oxygen, and is essential alike for the Oxidation of Food elements and for Ventilation of Sickroom.
 - C Contagion** and Infection, which in infectious illness may be spread by Patient, Visitors, and Herself.
 - T Thoroughness** and Accuracy in all her reports to Doctor, because treatment may largely depend on these details.
-

CHAPTER II.

VITAL FUNCTIONS.

The **Vital Functions** of the Body—by which we mean the ability to continue living—are the Circulation, Respiration, Digestion and Oxidation of food. **Their main object is to provide the elements from which Body-Heat and Body-Power may be created.** In the attainment of this object each Function is entrusted with **Special Duties** and equipped with **Special Organs.**

A knowledge of these Vital Functions and their interdependence and inter-action is essential if a Nurse is to appreciate the object of the treatment adopted in illness, because the better this is understood the more effective will be her assistance.

SUMMARY OF INTERACTION OF VITAL FUNCTIONS.

Through the Respiration, **Oxygen** is introduced into the blood.

Through the Digestion, **Food-elements** pass into the blood.

Through the Circulation, the **Oxygen and Food-elements** are carried by the blood to the tissues of the body, in which they enter into chemical combination and produce Body-Heat and Body-Power.

Through the Nervous System, the **Body-Heat** is regulated and controlled.

CIRCULATION.

I.—SPECIAL DUTIES.

The Special Duties of the Circulation are fivefold, and are carried out through the medium of the blood, which consists partly of red and white corpuscles and partly of blood-serum. These functions, as was shown in my *Aids to First-Aid*, may be epitomized thus :—

BLOOD.

- | | |
|---|--|
| (1) To regulate and sustain the | B Body Temperature. |
| (2) To supply the body and tissues with | L Liquid moisture. |
| (3) To absorb from the air and to carry | O Oxygen to the tissues. |
| (4) To renew and replace the | O Output of nourishment. |
| (5) To carry out Nature's plan for the | D Discharge of waste products. |

II.—SPECIAL ORGANS.

The Special Organs consist of the Heart, three sets of Vessels—arteries, veins, and capillaries—and three Blood-Systems.

(i) **Heart**—entirely muscular; size of clenched fist; divided into two halves—Right and Left—each consisting of an upper *receiving* (Auricle) and a lower *pumping* (Ventricle) chamber. Left half contains pure, Right im-

pure blood. The Heart contracts 72 times per minute, is slowed during repose and sleep, and is accelerated by exercise, excitement, &c. The presence of valves between the various chambers assists the flow of blood.

(ii) **Arteries** (*supply pipes*) take origin from Heart in one main stem (Aorta) and proceed to divide and subdivide into innumerable branches, ending in Capillaries, so that the further away they are from the heart, the greater is their area of distribution. In the wall of an artery there is a layer of muscular tissue, the elastic recoil of which assists the pumping action of the Heart in driving onward the stream of blood. Each main artery is usually in a position of safety, and is accompanied by vein and nerve trunks, and enjoys free intercommunication with its neighbour.

(iii) **Veins** (*drainage pipes*) originate from Capillaries as minute tubes which gradually unite to form larger vessels and end as the two important vessels which pass impure blood into Right Auricle, so that their total capacity diminishes as the veins approach the heart. Some veins, e.g., in legs, possess valves which act like lock-gates of a canal.

The onward flow of blood in the veins is caused partly by the suction-like action of the heart and partly by the contraction of the muscles (through which the veins pass) assisted by the valves where these are present.

(iv) **Capillaries** (*filter vessels*) are a sponge-net of minute tubes, which can only be seen with a microscope. They serve as connecting links between the arteries and the veins, and perform the important work of Absorption of Nutrient (Lungs, Intestine) and Discharge of Waste products (Lungs, Kidneys, Skin).

III.—SPECIAL BLOOD-SYSTEMS.

The Blood-Systems vary with the work which they have to perform and are called respectively General, Pulmonary and Hepatic.

(i) **General.**—In this System the Left Ventricle pumps bright red (oxygenated) blood into the arteries and capillaries of the Head, Trunk and Limbs, and the veins return the altered blood to the Right Auricle.

(ii) **Pulmonary.**—In this System the Right Ventricle pumps dark red (de-oxygenated) blood through the pulmonary arteries into the capillaries of the air-cells of the Lung, where it is purified and returned to Left Ventricle.

N.B.—The pulmonary Artery and its divisions carry venous blood, while the four main Pulmonary Veins and their tributaries contain arterial blood.

(iii) **Hepatic.**—*This System is purely venous.* A large vein carries blood from Stomach, Intestines and Pancreas to the capillaries of the Liver, from which large Hepatic veins collect and convey the altered blood to the large vein of the General System which opens into the Right Auricle.

RESPIRATION.

I.—SPECIAL DUTIES.

The Special Duties of the Respiration are twofold, viz. :—

(1) To bring pure **Oxygen** to the blood capillaries of the Lung.

(2) To remove impure Oxygen—**Carbonic Acid**—from these vessels.

This **Interchange of Gases** is carried out by the action

of the Respiratory Muscles, which cause the chest wall to expand and contract, and, in so doing, favour the **Diffusion of Gases**, which takes place when gases of different densities are brought into contact.

The interchange of gases is shown by the alteration in colour of the blood, and takes place *partly* in the lungs where the blood becomes bright red (arterial) or oxygenated, and *partly* throughout the tissues of the body where it becomes bluish (venous) and parts with its oxygen.

II.—SPECIAL ORGANS.

The Special Organs are the Lungs and Respiratory Muscles.

The **Lungs**—Right and Left—consist of myriads of small bag-like air-cells, the walls of which, being moist and lined with capillaries, permit the interchange of Oxygen for Carbonic Acid. The air finds its entry to the lungs through the main air passage (Larynx). This (like the arteries) proceeds to divide and subdivide into smaller air pipes, which finally end as minute tubes, each of which corresponds with one air-cell.

The **Respiratory Muscles**—viz., those attached to the Ribs and the Diaphragm—produce, when they contract, an expansion and an elevation of the chest, which causes air to enter the lungs (**Inspiration**). When they relax, then an expulsion of air (**Expiration**) takes place, owing to the consequent contraction and depression of the chest wall. In these movements there is only a *partial* filling and emptying of the Lungs, which, in turn, produces a *gradual* diffusion of Oxygen down and of Carbonic Acid up through the air passages.

DIGESTION.

I.—SPECIAL DUTIES.

The Special Duties of Digestion are twofold, viz.:—

(1) To dissolve soluble food (Salt, Sugar) into Food-elements.

(2) To convert insoluble food (Starch, Meat) into soluble.

Digestion, by which we mean this breaking asunder, solution, and conversion of food, is carried out partly as the result of **Muscular Action**, whereby an intimate mingling of food and digestive juices is brought about—and partly of **Chemical Action**, whereby the digestive juices of the Stomach, Intestine, Liver, Pancreas, &c., *assisted by the Heat of the body*, exert their special selective effects on the food, and convert the insoluble articles of diet into soluble elements, which are easily absorbed by the capillaries and lymphatics, and supply the needs of the human body.

II.—SPECIAL ORGANS.

The Organs of Digestion are:—

(i) **The Digestive Canal**, which extends from mouth to anus, and is supplied throughout its course with special secreting glands. This canal provides for the reception, solution, conversion, and absorption of food, and also for the excretion of food-residue.

(ii) **Certain Subsidiary Organs**, which are situated in the abdomen, and which either assist in these processes by special secretions, e.g., the Liver (bile), the Pancreas (pancreatic juices) or provide the means of excreting the waste products, e.g., Kidneys.

III.—DIGESTIVE CANAL.

A piece of food is received in the

(i) **Mouth**, where it is minced and chewed by the teeth, tongue, and jaws (**Mastication**) and undergoes its first chemical change with the Saliva, secreted by the Salivary Glands round and about the mouth. It is collected into a mass and passed by the muscles of the tongue and mouth over the entry of the Lungs into the gullet.

(ii) **Gullet (Œsophagus)**, a strong muscular tube, which is situate at the back of the Thorax. Food is driven down this canal by contraction of the muscles (**Deglutition**, swallowing), until, passing through the Diaphragm, it is carried into the Abdomen, where it is received by the stomach.

(iii) **Stomach**, a large, hollow, pear-shaped, and bag-like structure, lined by glands which secrete an acid secretion. In the stomach, the food is subject both to the effects of the chemical action of these juices and also to a process of Churning (**Peristalsis**) by the muscles of the stomach, which, after two hours of digestion, drive the food onwards to the small intestine.

(iv) **Small Intestine**, a long, small-bored, muscular tube coiled upon itself and measuring some 24 feet in length. In this canal, which is lined throughout by special glands, the food is exposed to the chemical action of these juices, supplemented by the digestive secretions of the Liver and Pancreas, and also to a series of Churning movements (**Peristalsis**) of the muscles in the wall of the gut, *until it is converted into simple chemical bodies and is ready for Absorption by the lymphatics and capillaries.* This constitutes the chief function of the Small Intestine.

After some eighteen hours of digestion, what remains of the food is passed into the large intestine.

(v) **Large Intestine**, a large-bored muscular canal, 6 feet in length and strengthened by special muscular pillars which help to drive on the residue of the food, the indigestible, and the accidentally undigested food, until this is finally excreted (**Defæcation**) at the anal orifice. This expulsion of food residue provides the chief function of the Large Intestine.

ABSORPTION AND OXIDATION OF FOOD-ELEMENTS.

As the food is digested and rendered soluble, then **Absorption** begins to take place through the moist walls of the capillaries, in the linings of the stomach and intestine, and of the lymphatics, which are the special collecting vessels of the digested products.

The **Lymphatics** constitute a system of vessels which are peculiar to Digestion and are quite independent of the special vessels of the Circulation. They resemble the capillaries in structure and in that they collect the food elements; they resemble the veins in that they unite to form one large trunk (Thoracic Duct), which empties its contents into the venous system at the left side of the neck, whence the digested food is carried to the Right Auricle of the Heart. During the process of Absorption, the lymphatics are filled with very small particles of fat which give the vessels a milky appearance. Hence the name lacteals.

This process of **Diffusion of Fluids (Osmosis)** is analogous to the Diffusion of Gases, which takes place during Respiration, except that mixtures of meat and starch cannot (until completely altered in character) permeate the intervening membrane.

Oxidation—that is, the combination of any element with Oxygen—takes place when the Carbon of the food meets with the Oxygen which is inspired and carried by the red corpuscles of the blood. This occurs throughout all the tissues of the body, is largely due to the action of ferments manufactured in the body, and constitutes a chemical inter-action, as the direct result of which two important events happen:—

- (1) Body-Heat and Body-Power are given off.
- (2) Complex bodies—e.g., Fats and Sugars—are changed into simple, viz., Carbonic Acid and Water, the latter of which escapes by the capillaries of the kidneys, lungs and skin.

Since, therefore, the Vital Functions are chiefly concerned in the creation and sustenance of the Body Temperature, the food-value of any article of diet depends on the amount of *free* Carbon and Hydrogen, which can combine with the Oxygen of the inspired air.

It is noteworthy that the rate of Oxidation varies under varying circumstances, and that, when it takes place so rapidly that light and heat are given off, as in a coal fire, it is known as Combustion or Burning, and again that, when it takes place slowly, as in the decay of animal or vegetable matter, it generates heat without light and is called Decomposition.

Table of Food Digestion, &c.

Food	Composition	Digestion	Absorption
Salt ..	Carbon Hydrogen Oxygen	<i>Dissolved</i> by Ptyalin of Saliva and by Gastric Juice	Capillaries of Stomach.
Starch	Carbon Hydrogen (—) Oxygen	<i>Converted into Sugar</i> by— (a) Ptyalin of Saliva (b) Alkaline Juices of Bowel, Liver, Pancreas after temporary check in stomach	(a) Capillaries of Stomach. (b) Capillaries of Bowel. (c) Lymphatics of Bowel.
Fats ..	Carbon Hydrogen Oxygen (—)	Capsule dissolved by Gastric Juice <i>Dissolved</i> into fine particles by Alkaline Juices of Bowel, Liver, Pancreas	Lymphatics of Bowel.
Meat..	Carbon Hydrogen Oxygen Nitrogen	<i>Converted into Peptones</i> by— (a) Gastric Juice (b) Alkaline Juices of Bowel, Liver, Pancreas	(a) Capillaries of Stomach. (b) Capillaries of Bowel. (c) Lymphatics of Bowel.

NERVOUS SYSTEM.

I.—SPECIAL DUTIES.

The Special Duties of the Nervous System are three-fold, viz. :—

(1) To preside over the Highest Functions of Brain and Body.

(2) To co-ordinate Movement and Sensation (Cerebro-Spinal).

(3) To harmonize all the Vital Functions (Sympathetic).

II.—SPECIAL ORGANS.

The Nervous System consists of two special Systems—the Cerebro-Spinal (Central or Voluntary) and the Sympathetic.

(1) Cerebro-Spinal System.

Brain—consists of two halves: situate in skull: controls **Intellect, Emotions, Movement** and **Sensation**.

Spinal Cord—continuation of brain: situate in spinal canal: gives off nerve-trunks: ends at second lumbar vertebra.

Nerves—offshoots of Brain (*Special Senses*) and of Cord (*Sensory* and *Motor*): white and pearly in appearance: divide up as they proceed (like the arteries) and ultimately become microscopical filaments: supply muscles of Head, Neck, Trunk, and Limbs: are the means whereby Brain and Spinal Cord control **Movement** and **Sensation**.

(2) Sympathetic System.

This System controls the Vital Functions by linking up the internal organs and blood-vessels in a common nervous action. It is independent of the will and acts during sleep.

Ganglia—two chains of small nerve-centres : situate in front of, and on either side of vertebral column. Through their nerves, they control **Nutrition** (i.e., Absorption of food-elements and Discharge of waste products) and **Body Temperature**.

Nerves—small delicate branches which proceed from ganglia and connect up the blood-vessels with the internal organs, especially Heart, Lungs, Stomach, and Intestine.

CHAPTER III.

THE SICK ROOM.

REQUIREMENTS.

The ASPECT of the Sick-Room is important.

The Nurse's Duty being directed primarily and principally to the Patient, the Sick-Room and Herself, she must always consider the special points with reference to the room when opportunity of choice occurs.

In short, the Nurse accepts responsibility for the Choice, Preparation, Furnishing, and Cleaning of the Sick-Room.

A Aspect. This should be South or South-Westerly, because—

- (i) The entering Air will be warmed and sun-penetrated.
- (ii) The late evening Day-light will be enjoyed by the patient.

S Size. *The larger the room, the better :* but a minimum of 1,000 cubic feet per person (or, in case of a ward, 100 sq. feet of floor space) should, where possible, be obtained. Further, we must estimate for two persons, viz., Patient and Nurse. Thus,

a room 18 ft. \times 12 ft. \times 10 ft. would allow 2,160 cubic feet of air.

N.B.—Experience proves (e.g., Theatres, Churches, &c.), that 12 feet is the maximum height which can be allowed in any estimation of the available air, because the expired air, though at first lighter than the atmospheric air, quickly cools, condenses and, being loaded with impurities, renders this air irrespirable.

P Position. The top floor of the house (or the most remote room in a flat) is the most suitable, because—

- (i) The room is removed from the noise and bustle of the house or flat.
- (ii) The risk of infection in Infectious Illness is minimized.

The proximity of the Sick-Room to lavatory and bath-room is an advantage; but the Attics of the house would be too cold in winter and too hot in summer.

E Entry of Air and Light. A deficiency of Day-light may depress the patient, and the entry of Air is important for Ventilation. The size of the Window, therefore, requires consideration, because—

- (i) A maximum of Sun-light should be ensured.
- (ii) The larger the inlet, the slower the Entry of Air.
- (iii) Draughts demonstrate the too rapid Entry of Air.

These requirements are satisfied by a window which allows 24 sq. inches per person. The top sash provides the better inlet and should be open day and night, whereas, if the bottom sash only is raised, the current of air passes direct to the chimney and causes a draught.

Further, the Consumption of Air must be anticipated. Electric light is preferable to Gas light, because an ordinary gas jet can burn up as much air as four persons. Also, it is advisable as far as possible to discourage unnecessary and prolonged visits of friends to Sick-Room.

Lastly, the blinds, sash-cords, &c., must be overhauled at the outset of the illness and made to work easily, so that the sleeping patient may not be disturbed by any unnecessary noise.

C Chimney. A fire is useful both for Warmth and Ventilation. Therefore, the chimney (and fireplace) must be kept clear, and should, if possible, be swept beforehand.

The Temperature of the Sick-Room should be kept at 60° F. by the heat of an open fire, and should be checked periodically by a Thermometer, which *is placed near the head of patient, the inspired air being important.* A "stuffy" Sick-Room is due either to over-heating or to atmospheric impurities. The thermometer will solve this problem and eliminate the former. The fire must be carefully "banked" with large lumps of coal,

which should be set in position *with gloved hand and with grain vertical* so that the escaping gases of the coal are consumed by flames.

Gas-fires, though clean, labour-saving, and convenient, have no place in a Sick-Room. Open Coal-fires are more suitable, because—

- (i) They are bright and cheerful for the Patient.
- (ii) They are essential to the proper Ventilation of the room.
- (iii) They ensure satisfactory Warming of room by radiation of heat.

At the same time, their possible disadvantages must not be overlooked, since they tend to heat the room unequally and to be wasteful, the bulk of their heat in some grates passing directly up the chimney. Further, they may give off dust and impurities into the air if the combustion of coal gases is not perfect and complete.

Lastly, a coal-scuttle, fire-irons, &c., are forbidden in a Sick-Room, because being carelessly used or accidentally knocked down, they may create a noise, which will disturb the Rest and Quietude of the Patient.

T Trappings of Room. *There is no room for anything which has not a useful and definite purpose, e.g., bed, washstand and crockery, chairs and tables.*

Requirements of Bed.—The single size (6ft. by 3½ft.) saves fatigue for patient and facilitates any movement by

attendants. The mattress should be composed of hair or straw. The bed-clothes should consist of four cotton sheets (upper, lower, draw and covering), and two blankets, preferably new, and with one or more in reserve for use if necessary. Further, both sheets and blankets must be large enough to be tucked in at sides and foot of bed.

Position of Bed.—The bed should be placed with both sides accessible, the head being towards an inner or partition wall, and the foot towards the fireplace. Also, when the door of the room is opened, the patient must not be exposed to the view of any one in the corridor.

Tables.—A small table is useful at the bedside for the Patient's comfort, and a larger table for the Nurse's requirements.

Chairs.—Three or four ordinary straight-back chairs, fitted with cane or wooden seats, will be serviceable. A comfortable armchair or couch will be necessary when the patient is convalescent. Its immediate introduction is not advisable, lest its comfort should tempt the Nurse to neglect her duties, or a Visitor to prolong his visit.

Lastly, feeding vessels, bed pans, urinals, &c., must not be kept constantly in the bed-room, though they must be conveniently near at hand, e.g., in the bath-room adjacent to the Sick-Room. Further, carpets, bulky furniture, woollen curtains, pictures, ornaments, &c., &c., are banished from the room, because—

- (i) They collect and harbour dust and germs.
- (ii) They necessitate increased labour in dusting, &c., &c.
- (iii) They diminish the air space and interfere with ventilation.

VENTILATION OF SICK-ROOM.

Ventilation means "fanning by wind" and is the renewal of the air contained in a room. It constitutes a most vital problem in Nursing, because *food, medicine and expert attention will avail nothing if fresh air is withheld*. Further, the necessity for fresh air, important as it is in a Sitting-room, is *more important in a Bed-room and absolutely urgent in a Sick-room*.

Under these circumstances, before we can discuss the Principles of Ventilation, we must first appreciate both the Composition of Air, inspired and expired, and also the possible Contamination of Air.

I.—COMPOSITION OF AIR.

Air is a gaseous substance without colour and without odour; it is composed of Oxygen and Nitrogen in the proportion of 1 : 4, faint traces of Carbonic Acid, and Water Vapour. The Oxygen is vital to life; the Nitrogen serves to dilute and carry the Oxygen; the Carbonic Acid is a poisonous, and (if not well diluted) an irrespirable gas.

II.—CONTAMINATION OF AIR.

The Air may be contaminated by—

- (i) Gases—the chief of which is Carbonic Acid.
- (ii) Solid particles, such as soot, dust, sand, pollen of plants, &c.
- (iii) Germs of all kinds.

Outside the House the Carbonic Acid results chiefly from the Oxidation of living tissues, the Combustion of fires,

furnaces, &c., and the Decomposition of animal and vegetable matter (see p. 13).

Inside the House the Carbonic Acid originates more especially from the Respiration and the Combustion of the material used for heating, e.g., coal, gas, oil, &c.

Impurities of Internal Air.

The full **Crop** of impurities of the air of the house is—

- C Combustion** of fire, &c.—Carbonic Acid, dust, soot, &c., &c.
- R Respiration**—Carbonic Acid, heat, moisture.
- O Organic Matter**—from teeth (especially if decayed), skin and lungs.
- P Perspiration**—Heat, moisture, since exudation and evaporation is always going on from the skin.

The following table shows *the proportions of the various gases, &c., present in 10,000 parts of Atmospheric (Inspired) and Expired Air*, and also the effects of Respiration—especially the loss of Oxygen, the increase of Carbonic Acid, and the absence of change in Nitrogen.

	Inspired Air	Expired Air
Oxygen	2096	1656
Nitrogen	7900	7900
Carbonic Acid	4	444
Water Vapour	Varies	Saturated
Temperature	Varies	Body—98·4° F.

III.—RESULTS OF CONTAMINATION OF AIR.

The breathing of air contaminated with Carbonic Acid may be tolerated for a short time, as in Church, Theatre, &c., but, if it be prolonged, then headache, drowsiness, and other signs of Carbonic Acid poisoning will develop. Moreover, if any person is exposed constantly to such a vitiated atmosphere, *more especially during his hours of sleep*, then the Carbonic Acid poison—in association with the concomitant overheating and excess of moisture, which will interfere with the natural exudation and evaporation of the skin—will result in profound Weakness and Anæmia due to the General Depression of the Vital Functions. Further, if these are the results to a person in full health and strength, what must be the effects on a patient who is struggling against some illness?

IV.—PURIFICATION OF EXTERNAL AIR.

In passing, we may note that the External Atmosphere is purified by—

(i) **Diffusion of Gases.**—The greater the density of the Gas the more rapid its mixing.

(ii) **Winds, Breezes, &c.**, which depend on changes in temperature.

(iii) **Rain, Dew, Snow, &c.**, which are formed by the condensation of Water Vapour, and act by dissolving and

absorbing the extraneous matter. Hence the improvement in public health during wet weather.

(iv) **Green Plants, &c.**, which absorb Carbonic Acid and Water to form complex bodies, including the colouring matter (Chlorophyll, "green leaf"), and so liberate free Oxygen. These provide us with our chief source of Oxygen, so that the name—Lungs of London—sometimes applied to the green and open spaces and parks of London (or any other large town) is justified.

V—PURIFICATION OF INTERNAL AIR—VENTILATION.

Ventilation—i.e., the Purification of the Internal Air—is divided into Natural and Artificial. The latter is carried out by mechanical means in large buildings, and is beyond the scope of this book.

Natural Ventilation is only possible in private dwellings. It is obtained by means of the windows, chimneys, and doors, and can only be perfect in the summer. The secret of success is *to keep the windows opened and the doors closed*.

The aim of Ventilation is to keep the proportion of Carbonic Acid in the air of the room at less than 6 parts in 10,000, whilst at the same time the temperature of the room is maintained at 60° F. To attain this object, 3,000 cubic feet of air are required per person per hour, because experiments have demonstrated that 1,000 cubic feet are, under ordinary circumstances, consumed in twenty minutes.

VI.—PRINCIPLES OF VENTILATION.

The Air Supply must be Warm and PURE.

The three leading Principles involved are : *The Diffusion of Gases, the Winds, and the Differences in Temperatures of Air*, i.e., the weight of hot and cold air.

P The Air must be **Pure** in quality and not tainted.

Therefore, we draw our supply through the open window and not through the door of the Sick-Room.

U The Air must have an **Upward** direction. The Hinckes Bird wooden block, placed beneath the lower sash, forms a narrow air channel directed upwards. The entering cold air is by this means sent towards the ceiling, and becomes slightly warm before it *diffuses* down and reaches the occupants of the room.

R The **Rate of Entry** must be such that it is not perceptible to the occupants. In other words, there must be no draughts which are inimical to health owing to the chilling of the superficial circulation, and consequent fall of Body Temperature.

Further, the risk of draughts is increased *when the air entry is small and the current of air unbroken.*

The *Winds* affect the Entry of Air in two ways. Thus, they can force their way by *direct violence* through the cracks and crevices of the doors and windows, and for this purpose are useful in the ventilation of ships ; or they may assist ventilation

by *indirect violence* or suction, as, for example, when they pass across the chimney-top.

E The **Exit** (no less than the Entry) of Air must receive attention, and takes place up the chimney.

The removal of foul Air can be carried out either from above or below. The former method is difficult, though it may be accomplished by a burner, which owing to the *Differences in Weight* of hot and cold air causes an upward current and sucks out gases. Removal from below is the easier and more convenient way and is carried out through the chimney. It is, therefore, of paramount importance to keep the fireplace clean, the register open, and the chimney well swept of soot.

Down-draughts are usually caused by obstruction of entry of air, and remedied by opening the window or door, whereas the *Up-draught*, created by the fire or a lamp placed in the grate, enables cold air to replace the heated column which passes up the chimney and at the same time overcomes the cold, damp, and heavy atmosphere.

CHAPTER IV.

DIET.

Diet signifies the mode of living with special reference to the food, the importance of which in the formation and sustenance of the Body-Temperature has already been shown. Further, improper food being well recognized both as an active and also as a predisposing cause of disease, it is necessary for a Nurse to appreciate the Functions and Composition of Food.

I.—FUNCTIONS OF FOOD.

Food is essential to the human body and is taken for three special objects, viz. :—

- (1) To form the Body-Tissues, which are slowly, though surely, being consumed.
- (2) To replace the waste of the Body-Tissues.
- (3) To supply both Body-Heat and Body-Power.

II.—COMPOSITION OF FOOD.

Food may be divided into two main classes, *Nitrogenous* and *Non-Nitrogenous*, the latter being again subdivided into Organic (i.e., Compounds of Carbon) and Inorganic Groups (i.e., Carbon-free Compounds).

(1) Nitrogenous Foods.

These are composed of Carbon, Hydrogen, Oxygen and Nitrogen. They used to be called Body-Builders or Flesh-Formers, because their chief function is to form and keep

the muscles of the body in good condition. *Lean* meat serves to create muscle because it is the most fertile and most easily assimilated source of Nitrogen. Butcher's meat, which is muscle from specially fattened animals, provides us with our most reliable supply of both Nitrogen and Fat. At the same time, Nitrogen is present in other foods, as the following list shows:—

- (i) Meat (Butcher's, Fish, Poultry).
- (ii) Milk, Cheese (Casein of Milk), Eggs (whites).
- (iii) Oatmeal, Peasemeal.
- (iv) Haricot Beans and Lentils.

It is noteworthy that milk and oatmeal are the only two perfect foods in that they contain all the elements essential to life.

(2) Non-Nitrogenous Foods.

The foods which do not contain Nitrogen are best classified as Organic and Inorganic.

(A) *Organic Foods (Carbon Compounds)*.—Fats. Starch. Sugar.

These, when analysed, are found to consist of Carbon, Hydrogen and Oxygen. *They undergo Oxidation easily and prevent waste of Body-Tissues.* Therefore, they are sometimes called Body-Warmers, because their food-value depends on the amount of free Carbon and Hydrogen, which can combine with the Oxygen of the air. Fats are most useful for this purpose, because they are deficient in Oxygen, whilst Starches and Sugars owe their usefulness to the fact that, Hydrogen and Oxygen being already combined as water, there is a goodly supply of free Carbon.

Fats, which form fatty but not muscular tissue, are presented in Butter, Cream and Oil (animal and vegetable).

Starch is the principal ingredient of Bread, Potato and Rice.

Sugar (e.g., as jam) has a well recognized food-value as a substitute for Starch but it must be used with discretion, because, being very rapidly absorbed, it is apt to undergo fermentation and to disturb Digestion by creating Flatulence.

(B) *Inorganic Foods*.—Oxygen. Water. Salts.

Oxygen is necessary to life and is indispensable to the process of Oxidation of Food-elements and creation of Body Temperature.

Water is required both for dissolving food and for hastening the changes in the Body-Tissues, and is present, more or less, in all liquid and solid food. In addition, it is advisable to drink two pints of water per diem, so that four pints of water is reckoned as the daily allowance of fluid. The excretory organs, however, eliminate four and a half pints under ordinary circumstances, the extra quantity being formed in the process of Oxidation.

Salts play a most important part in the formation of muscle and bone, and are essential to certain vital secretions, e.g., blood and gastric juice. Excepting table salt (Sodium Chloride), which must be supplied separately, they occur in other foods. Thus green vegetables are valuable for the salts they contain (the green matter consisting of iron necessary for the blood), and also for their large residue which stimulates the action of the bowel. Again, the lack of Lime salts gives rise to Rickets and its deformities of bone, while deficiency of Potash salts precipitates the onset of Scurvy. Dieting with good food, especially milk, cream, eggs and fresh fruit, will cure both diseases. For the last named, potato, being rich in the deficient salt, is particularly valuable.

INVALID DIET.**A.—Requirements.****INVALID food must be properly cooked and served.**

In the choice, cooking and serving of food, many important problems are involved, such as Cleanliness, Quality, Digestibility, &c., &c. Therefore, the food of an Invalid should be—

I Inviting. Cleanliness in cooking and serving meals is very important.

- (1) *Dishes, Cups, &c., must be scrupulously clean.*
Unless the invalid's tray be made as attractive as possible, the food will disgust the patient, destroy his appetite, and impede digestion.
- (2) *Small quantities should be given at frequent intervals.* Further, since large and bulky quantities tend, like badly served food, to destroy appetite, they are best served in small vessels.
- (3) *Food should be either cold or hot.* If food is supposed to be hot, then steps must be taken to keep it hot during serving, and to avoid serving half-cold.

N Nutritious. The Quality of the food is important and the dietary must include Nitrogenous foods + Fats + Sugar **or** Starch, together with Water and Salts (Chlorides, Sulphates, Phosphates). Milk and Oatmeal satisfy these requirements and are perfect foods. A strictly vegetarian diet is deficient in the fats of butcher's meat and should be supplemented with Olive Oil.

- V Varied.** *Variation of diet is as important as Cleanliness and Quality of food*, because in sickness the appetite, which controls digestion, is apt to be capricious and may require to be coaxed by frequent changes and alterations.
- A Available.** Food must always be available so that any passing fancy of the patient may be immediately satisfied ; but *food must never be kept in a Sick Room*. This rule applies particularly to milk and water, which are most easily contaminated by germs.
- L Leisure.** Food should be eaten leisurely, if digestion and absorption are to be satisfactorily carried out. Hence the importance of keeping visitors out of the Sick-Room at meal times. Mental worry and physical fatigue interfere with digestion.
- I Intervals.** Food must be served at regular and fixed intervals, because the organs of digestion, as do all the Vital Functions, require rest and resent undue calls upon their activity.
- D Digestible.** In sickness, digestion and absorption are greatly impaired. The objects of Invalid Cookery, therefore, are—
- (1) To combine the maximum nourishment of food with smallness of bulk.
 - (2) To present food as nearly ready for absorption as possible.

The method of cooking, therefore, is very important, and it is found that great initial heat with continued application just *below* boiling point (e.g., roasting, boiling, &c.), will provide the maximum of digestibility and nutrition with a minimum of waste.

B. Special Articles of Invalid Diet.

	Constituents	Notes on Preparation
I. FOODS.		
Milk and Soda Water	Equal parts ..	May be given hot or cold. Drink while effervescing.
Beef Tea—		
Ordinary	1 lb. lean juicy beef 1 pint cold water	Cut up finely. Remove skin, fat, &c. Soak 1 hour. Simmer in oven 5 hours. Strain through muslin.
Rapid	Ditto	Raise quickly to boiling point. Keep boiling 5 minutes.
Mutton-Broth ..	1 lb. lean mutton 1 pint cold water 1 carrot, 1 turnip, 1 onion	Cut all up finely. Raise slowly to boiling point. Stew 3 hours. Strain.
Albumen Water ..	Whites of 2 eggs 1 pint cold water Large pinch of salt	Add water slowly. Stir well. Do not whip. Sweeten to taste.
Beef Tea and Oatmeal	1 oz. oatmeal 1 oz. water 1 pint beef tea	Mix oatmeal into paste. Add Beef Tea. Stir well. Boil 5 minutes. Strain.
Oatmeal Gruel ..	1 oz. oatmeal 1 oz. milk 1 pint boiling milk	Mix oatmeal into paste. Boil gently 30 minutes. Stir well throughout. Flavour with salt or sugar.

Special Articles of Invalid Diet—*continued.*

	Constituents	Notes on Preparation
II. DRINKS.		
Lemonade	Juice of 2 lemons Some rind (yellow part only) 1 pint <i>boiling</i> water	Soak 12 hours. Effervesce with small pinch bicarbonate of soda. Sweeten to taste.
Orangeade	Juice of 4 oranges Juice of 1 lemon 1 pint boiling water	Ditto.
Imperial Drink ..	1 lemon 1 teaspoonful cream of tartar 1 pint boiling water	Cut up lemon into thin slices. Cover. Stir till cold. Strain. Sweeten to taste.
Toast Water ..	Crust of bread, browned Cold water	Stand 30 minutes. Flavour with juice of lemon.
Barley Water ..	2 oz. barley 1 pint cold water (twice) Piece lemon peel	Wash barley well. Boil 5 minutes. Strain. Fresh cold water. Boil 5 minutes. Simmer 3 hours. Strain. Sweeten to taste.
Linseed Tea	1 oz. linseed meal 1 pint boiling water	Stand 15 minutes to draw. Strain through muslin. Sweeten with honey or sugar.
Whey	Essence of rennet ($\frac{1}{2}$ oz.) 1 pint boiling milk	Mix. Boil again. Strain curd from whey.
Black-currant Tea ..	Black-currant jam ($\frac{1}{2}$ oz.) 1 pint hot water	Mix.

CHAPTER V.

CONTAGION AND INFECTION.

Diseases may be divided into two main groups—Infectious and Non-Infectious. **Infection** means the transmission of disease from person to person, each disease being intimately associated with a special germ or organism. **Contagion** and Infection are synonymous terms.

I.—VARIETIES OF INFECTION.

The Infectious Diseases may be still further sub-divided into Acute and Chronic. Thus, certain diseases (e.g., Scarlet Fever, Measles, Typhus, &c.) are called **Acute Infectious Diseases**, because they are usually—

- A Acute** in their course and duration and sudden in their onset.
 - C Contagious**—i.e., the result of the transmission of a special (specific) germ.
 - U Uniform** in their stages — Incubation, Invasion, Eruption, &c.
 - T Associated with rise of Temperature**
 - E And also with peculiar Eruptions**
- } as their leading symptoms.

This group is sometimes called **Zymotic** ("pertaining to fermentation") because, like the ferments in this process, the germs of the diseases (while being themselves apparently unchanged) are capable of producing in the human body chemical actions which result in poisonous bodies being introduced into the blood.

Certain other diseases are equally infectious, but they are slower in onset and more prolonged in course and duration, and are called **Chronic Infectious Diseases**, e.g., Tuberculosis.

II.—PATHS OF INFECTION.

There are three possible Paths of Infection, viz.—

B Respiratory Tract (Breath)—

The poison is inhaled *directly* from the patient or *indirectly* from the clothes and other infected articles, e.g., Measles, Scarlatina, Typhus.

B Digestive Tract (Bowels)—

The poison is swallowed and enters the system through the lining membrane of the mouth, stomach, or bowels—e.g., Diphtheria, Typhoid Fever, Dysentery, Cholera. It is noteworthy that milk favours the growth of germs and is very apt to carry infection.

B Abrasions of Skin (Bites, &c.)—

The poison is introduced directly into the circulation either through abrasions of the skin (e.g., Tetanus) or through animal or insect bites—e.g., Hydrophobia (dog bites), Malaria (mosquito bites).

III.—RESULTS OF INFECTION OR FEVER.

After exposure to an infectious disease the danger varies with—

- (i) The general health of the individual.
- (ii) The virulence of the poison introduced.

In short, unless the germ can produce its own poison, there will be no blood-poisoning (toxæmia) and consequently no fever or rash. The **Fever** is the demonstration of the disturbance of the Nervous System and the **Rash** is the outward evidence of the escape of the bodies formed by the poison (toxins) through the capillaries of the skin. Further, *each rash has peculiar characteristics* whereby we recognize the special disease.

IV.—SIGNS OF INFECTION OR FEVER.

The presence of **Fever** signifies that *the blood is in a state of poisoning*, and is recorded by the clinical thermometer. The controlling influence of the Central Nervous System upon the Vital Functions (Circulation, Respiration, Digestion, &c.) is withdrawn, and the Signs are recognized by the General and Special Effects of the Fever.

A General Effects.—Restlessness, Headache, Delirium.

B Special Effects—

- (1) *Circulatory System.*—Flushing of face; rapid action of heart and pulse; increased loss of

heat by evaporation, accompanied by thirst and dryness of skin.

(2) *Respiratory System*.—Breathing more rapid and shallow; diminished intake of the all-important Oxygen.

(3) *Digestive System*.—Vomiting and wasting of body, owing to interference with powers of digestion and assimilation of food.

V.—CLASSIFICATION OF ACUTE INFECTIOUS FEYERS.

Various classifications—dependent either upon the localization or upon the symptoms of the diseases—have been suggested. These serve no useful purpose, and are chiefly of importance because we must appreciate the meanings of their several names.

(1) Localization of Disease.

Endemic—"Among the people," restricted to a locality—e.g., Malaria.

Epidemic—"Upon the people," a spreading outbreak—e.g., Measles.

Sporadic—"Scattered like seed," isolated cases—e.g., Typhus.

The classification fails because some diseases (e.g., Typhus, Typhoid Fever, &c.) may be endemic, epidemic, or sporadic.

(2) Symptoms of Disease.

(1) *Idiopathic*—"its own suffering or disease." The Fever is apparently both cause and effect.

Symptomatic—"pertaining to symptoms." The Fever is only an effect, e.g., Pleurisy, where the inflammation of the covering of Lung is the cause.

(2) *Eruptive*—"producing eruption." The Rash indicates climax of disease, e.g., Measles.

Continued—"joined on." The Fever continues after rash appears. Typhoid Fever and Typhus are the typical examples in this country and the latter is now practically extinct.

VI.—COURSE OF INFECTION OR FEVER.

(1) **Incubation**—"the act of hatching." Germs introduced by the breath, bowels or bites of insects require time to develop and produce their poisons which are passed into the blood-stream and cause a state of Fever.

The **Periods of Incubation** assigned to the various Infectious Fevers are approximate and may be roughly tabulated thus:—

Within one week—Influenza, Diphtheria, Scarlatina.

Within two weeks—Measles, Typhus, Small-pox,
Chicken-pox.

Within three weeks—Typhoid Fever, German Measles.

(2) **Invasion**—"the attack." This is the first outward evidence of the blood-poisoning and shows itself in Fever and its associated symptoms, of which rigors, headache, backache, and vomiting are common.

(3) **Eruption**—"the breaking forth." When fully matured, the poison begins to escape from the blood, *usually within one week of the Invasion*, through the excretory organs of the body—viz., skin, lungs, kidney, intestine. This escape is immediately apparent in (though not limited to) the Skin, as the frequency of the Lung Complications—Pneumonia and Bronchitis—in the Infectious Fevers proves. Further, the escaping poisons give rise to irritation and show a predisposition in their choice of the excretory organs, the organs selected being in consequence rendered more prone to inflammation in some diseases than in others. Thus in Chicken-pox they are most liable to affect the skin; in Measles, the skin and lungs; in Scarlatina, the skin, kidneys and lungs; in Typhoid Fever, the skin, intestines, kidneys and lungs.

The **Appearance of the Rash** usually occurs in Chicken-pox on the 1st, 2nd or 3rd day; in Scarlatina, on the 2nd day; in Small-pox, on the 3rd day; in Measles, on the 4th day; in Typhus, on the 5th day; in Typhoid Fever, on the 10th day.

(4) **Defervescence**—"the abatement of boiling." When the temperature falls to normal *both in morning and evening*, the poisoning is at an end and the invading host of germs has been overcome. It is noteworthy—

- (1) That the germs will probably be still present in the excreta;
- (2) That the patient is, therefore, a source of infection to others; and
- (3) That the temperature may fall abruptly (**Crisis**), or gradually (**Lysis**).

(5) **Convalescence** — “the becoming strong.” The gradual return to normal health varies with—

- (1) The severity of the disease, and more especially its duration.
- (2) The reserve strength of the patient and his assimilation of nutriment.

During these last two periods allowance must be made for the possible development of **Complications** and for the possible danger of **Infection** to others. These risks are particularly marked in Typhoid, Scarlet and Typhus Fevers.

The **Periods of Convalescence** are estimated from Defervescence and vary considerably—the minimum periods being—

Two weeks—in Measles and German Measles.

Four weeks—in Diphtheria and Typhus.

Six weeks—in Scarlatina.

Eight weeks—in Typhoid Fever.

Note.—The derivation of the names applied to the Fevers is interesting and instructive, e.g. :—

Measles	..	means “spots” and refers to the typical eruption.
Pox	..	,, “pustules” and refers to the typical eruption.
Diphtheria	..	,, “a skin” and refers to the membrane of throat, &c.
Typhus	..	,, “stupor” and refers to the mental state.
Typhoid	..	,, “like Typhus” and signifies the resemblance of these two diseases.
German Measles	..	,, “allied to Measles” and signifies the resemblance of these two diseases.

	SCARLET FEVER (<i>Scarlatina</i>).	MEASLES (<i>Morbilli</i>).
<i>Leading Signs..</i>	Throat. Temperature. Tongue. Rash.	Severe Cold. Tempera- ture. Rash.
<i>Infection ..</i>	Breath, Discharge from nose or ear, Scales of skin, Clothes of patient. Third person.	Breath, Clothes of pa- tient. Third person.
<i>Incubation ..</i>	1 week, often with Vomit- ing, Headache or Diar- rhœa.	2 weeks, usually patient depressed and ill.
<i>Invasion ..</i>	Sudden, rapid, pronounced. Often with Delirium.	Sudden, rapid. Signs Severe Cold of head.
<i>Eruption ..</i>	2nd day. Originates <i>Neck</i> , <i>Chest</i> : spreads rapidly to limbs. Bright red pin- head spots become dif- fuse red Rash and fade on exposure. Tongue resembles strawberry.	4th day. Aggravation of Cold. Starts on <i>Face</i> , spreads down. Dull red crescentic blotches , with areas of pale normal skin. Tongue furred.
<i>Defervescence ..</i>	Rapid.	Rapid.
<i>Convalescence ..</i>	6 full weeks (3 in bed).	3 full weeks (1 in bed).
<i>Complications ..</i>	Inflammation of Throat , Glands of Neck, Ear, Kidney, Lungs.	Inflammation of Lungs , especially Pneumonia, Bronchitis.

TYPHOID FEVER

(21-day Fever, Enteric,
Abdominal Typhus).

Leading Signs.. Headache. Temperature.
Delirium. Diarrhœa.

Infection .. Excreta of Bowel, Bladder,
Infected Water, Milk.

Incubation .. 21 days—usually Headache.

Invasion .. *Gradual* with progressive
Headache. Temperature, door-step evening
rise first week, continuously high two weeks,
falls by *Lysis* 4th week.
Diarrhœa — pea - soup
stools.

Eruption .. 10th day—Abdomen—often
absent. A few **rose-**
coloured pimples appear
in crops.

Defervescence .. **Lysis** on 21st or 28th day.

Convalescence .. 8 weeks.

Complications .. *Any sudden change suggests*
danger. Inflammation of
Bowels, with diarrhœa,
hæmorrhage, ulceration
and perforation. Pneumonia.

TYPHUS FEVER

(Camp Fever, Gaol
Fever, 14-day Fever).

Headache. Temperature.
Delirium. Collapse.

Breath, Skin, Urine..
Dirt, Body lice, Over-
crowding.

10 days—often Head-
ache.

Sudden with **Delirium.**
Temperature very
high and continuous.
Falls by *Crisis* on
14th day.

4th day—Body, spread
to limbs. **Mulberry**
spots beneath skin.

Rapid **Crisis** on 14th
day.

4 weeks.

Inflammation of Heart
and Lungs.

Disease eradicated by
Sanitation and Hy-
giene.

	SMALL-POX (<i>Variola</i>).	CHICKEN-POX (<i>Varicella</i>).
<i>Leading Signs</i> ..	Initial Fever—Blisters. Secondary Fever—Pustules.	Slight Fever. Blisters.
<i>Infection</i> ..	Scales of skin, Breath of patient.	Scales of skin, Breath of patient.
<i>Incubation</i> ..	14 days.	14 days.
<i>Invasion</i> ..	Sudden with Pain in back , Delirium and high Temperature.	Sudden with slight Temperature.
<i>Eruption</i> ..	3rd day. Shotty Pimples on forehead, wrists: spread: become Blisters and afterwards Pustules . Scabs fall off 10th day.	2nd day. Rose-red Pimples on body: spread: become Blisters , which scab and scar.
<i>Defervescence</i> ..	Secondary rise Temperature with the formation of pustules, followed by gradual fall.	1 week. Rapid.
<i>Convalescence</i> ..	When scars heal and skin normal.	3 weeks, when scars healed.
<i>Complications</i> ..	Inflammation of Skin, Eyes, and Lungs (esp. Pneumonia).	Exceedingly rare.

NOTE.—Small-pox has been eradicated by Vaccination, which protects for 7 to 10 years. Vaccination produces *Pimple* on 4th day, *Blister* on 5th day, *Scab* on 14th day, *Scar* on 21st day.

	DIPHTHERIA.		TONSILLITIS.
<i>Leading Signs..</i>	Temperature. Headache. Throat (usually).		High Temperature. Headache. Throat.
<i>Infection ..</i>	Breath.		Breath.
<i>Incubation ..</i>	2 or 4 days.		2 days.
<i>Invasion ..</i>	<i>Gradual.</i> Marked Headache and bodily weakness due to acute toxæmia. Discomfort of Throat.		<i>Rapid</i> with intense Headache , pains in limbs and soreness of Throat.
<i>Eruption ..</i>	Greyish deposit (or membrane) in throat, nose, or windpipe.		Many small white points on surface of swollen tonsils.
<i>Defervescence ..</i>	<i>Gradual.</i> Fever variable and lasts 14 days.		<i>Rapid.</i> Fever lasts from 3 to 7 days.
<i>Convalescence ..</i>	4 weeks.		1 week.
<i>Complications ..</i>	Paralysis of heart, palate, eye or limbs : Pneumonia : Inflammation glands in neck.		Tonsillar abscess (quinsy). Glands in neck.

CHRONIC INFECTIOUS DISEASES.

Tuberculosis is the typical example of a Chronic Infectious Disease. Its principal points may be emphasized by contrasting it with an acute disease such as Typhoid Fever, because—this difference excepted—both diseases are (1) very fatal in their results, (2) both are due to a specific, microscopical germ, (3) both are infective, and (4) both are distinctly preventible and curable.

A protective vaccine, the value of which was demonstrated in the South African War, is available for Typhoid Fever.

TUBERCULOSIS.**Occurrence.**

- (1) All parts of civilization.
An alternative name is
White Man's Scourge.
- (2) Attacks all organs and
tissues, e.g., Tonsils and
Glands (Scrofula), Skin
(Lupus), &c.
- (3) Attacks chiefly Lungs,
Bowel, Brain.

Infection.

Sputum, Fæces.

(Sputum most dangerous
when dry.)

- (1) *Handling* of nursing and
feeding utensils, soiled
with sputum.
- (2) *Air*—infected with germs.
- (3) *Food* from infected animals,
especially milk and meat.

Predisposing Causes.

- (1) Overcrowding.
- (2) Bad Ventilation.
- (3) Personal Intemperance.
- (4) Certain Diseases, especially
Measles and Whooping
Cough.

TYPHOID FEVER.

- (1) In Camps, &c., especially
when drainage is defective.
- (2) Complications may affect any
organ or tissue.
- (3) Attacks chiefly Bowel, Kid-
neys.

Fæces, Urine.

(Excreta contain myriads of
germs.)

- (1) *Handling* of body, bedding,
clothes and utensils—soiled
with excreta.
- (2) *Air* from infected drains,
cesspools, &c.
- (3) *Food* infected with germs,
especially milk and water.

- (1) Overcrowding.
- (2) Bad Sanitation.
- (3) Personal Intemperance.

CHAPTER VI.

DISINFECTION.

Disinfection signifies the destruction of the infection (living germ) which carries and spreads disease. A **Disinfectant** is a chemical body which *destroys* germs, whereas an **Antiseptic** only *retards the growth* of the germs. A **Deodorant** satisfies neither of these objects, and only *masks the smell of the products* of germs.

Varieties of Disinfectants.

I.—NATURAL. Air. Sunlight. Earth.

Fresh Air.—Oxidizes and destroys some germs, e.g., Typhus.

Sunlight.—More effective, and will even destroy germs of Tuberculosis.

Earth.—Will act after a time, but there is a risk of infection of surface water.

II.—ARTIFICIAL. (1) *Heat.* (2) *Chemicals.*

(1) **Heat.**

(i) *Burning.*

Mops, dressings, and all valueless articles, especially if stained with discharges, &c.

(ii) *Boiling.*

Best for instruments, glass, crockery, &c.

N.B.—(i) Glass instruments are first placed in cold water which is gradually raised to boiling point.

(ii) Blood is fixed by heat. Blood-stained instruments, therefore, are first washed in cold water containing some salt, to dissolve blood.

(iii) *Hot Dry Air.*

Less effective than steam. Suitable for rubber, fur, and leather, which are damaged by steam.

(iv) *Steam.*

Usually applied under pressure. Suitable for bedding, clothing, and bulky articles.

(2) **Chemicals.** (i) Gaseous. (ii) Liquid.

(i) **GASEOUS.**

(a) *Sulphur Vapour.*

3 lbs. per 1,000 cubic feet of air space burned in room. Uncertain; unsatisfactory; attacks cloth and leather; and bleaches clothes.

(b) *Formalin Vapour.*

40 per cent. Formaldehyde. Effective and usually adopted. Otherwise, it has same disadvantages as sulphur. Compact kits are sold, ready for use.

(c) *Chlorine Vapour.*

Made by mixing 2 parts Chloride of Lime with 3 parts strong Hydrochloric Acid. Gas heavy, sinks; pungent, irritating and irrespirable. Place vessel high up in room.

(ii) LIQUID.

N.B.—(i) Solution must be sufficiently strong.

(ii) Application must be sufficiently prolonged.

(a) *Corrosive Sublimate* (Perchloride of Mercury).

Very poisonous; most useful, especially for hands; injures metals; not available for metal instruments. Solution is usually blue, due to addition of Methylene Blue—to prevent accidents.

Disinfectant, 1 in 1,000; Antiseptic, 1 in 2,000.

(b) *Carbolic Acid*.

Very poisonous; useful for hands, instruments, dressings, &c. Solution is usually coloured red with Eosin. Disinfectant, 1 in 20; Antiseptic, 1 in 40.

(c) *Coal Tar Products*.

Lysol, Izal, Cyllin (1 teaspoonful to pint). Useful for hands, dressings, instruments, &c.

Disinfectant, 1 in 40; Antiseptic, 1 in 80.

(d) *Chloride of Lime* (Chlorinated Lime, Bleaching Powder).

Useful for drains, fæces and urine; when fresh contains 34 per cent. available Chlorine. For drains, 2 ounces to 1 gallon of water.

Disinfectant, 1 in 100; Antiseptic, 1 in 200.

(e) *Permanganate of Potash*.

Oxidizes and destroys contagia; weak, and becomes inert when colour goes; non-poisonous.

USE OF DISINFECTANTS.

The three chief sources in the dissemination of Infectious Diseases—to which the Nurse's care is mainly devoted—are the **Patient**, the **Sickroom**, and **Herself**, experience proving that the Doctor, whose duty does not bring him into such intimate contact with the Patient as the Nurse, very rarely acts as a *fever-carrier*, unless it be towards his own family.

Disinfection is, therefore, of supreme importance, both during and after illness, especially the Infectious Diseases.

I.—DISINFECTION DURING ILLNESS.

(1) **Sickroom.**—The floor, furniture, and all the wood-work of the room, i.e., *any article likely to collect and retain dust and germs*, must be wiped over daily with a cloth wrung out of antiseptic solution. A wet antiseptic sheet nailed up outside the door is useful, if only to remind other members of the house of the danger of infection. Further, a large basin of antiseptic *outside the door* should be available for receiving the feeding vessels, and a small basin *inside the room* for disinfection of the hands of Doctor, Nurse, and any Visitors.

(2) **Patient.**—The bed-clothes and personal linen should, when these require changing, be placed *directly* in antiseptic solution and left to soak for at least one hour. So also the Feeding and Nursing Utensils. The excreta, especially in Typhoid and Typhus Fevers, must, *bulk for bulk*, be immersed and thoroughly intermingled with strong disinfectant, such as Carbolic or Chloride of Lime.

(3) **Nurse.**—Close-fitting caps and all-embracing overalls should be provided for the Nurse when she has to leave

the sickroom, and also for the Doctor when he enters it. Further, during all manipulations of the patient, the Nurse must keep her sleeves turned well up, and when these are completed she must soak her hands in the antiseptic solution for at least two minutes, completing the disinfection by thorough cleansing in soap and hot water.

II.—DISINFECTION AFTER ILLNESS.

(1) **Sickroom.**—The furniture is spread out in room, all drawers and closed recesses being pulled open, *because the gaseous disinfectants affect the surface only*. The room is sealed up from the inside, the Formalin or Sulphur is set on fire, and finally, the door of exit is sealed up. The air of the room is thereby rendered stable and so immobile that free disinfection with Formalin or Sulphur vapour can take place. After twenty-four hours, the door, windows, and chimney are opened, and the room is subjected to free aëration, *a most essential step in Disinfection*, for one, two, or better still seven days, before it is reoccupied.

(2) **Patient.**—At the termination of the illness the patient is given an antiseptic bath and thoroughly cleansed from head to foot with antiseptic soap. He is then wrapped up in a blanket and removed to a neighbouring room where he is dressed in clean clothes. The bedding and other bulky articles are sent to a disinfection chamber, the personal linen, feeding, and nursing utensils being sterilized as above.

(3) **Nurse.**—The same precautions are necessary for Nurse as for Patient. Further, the Nurse should not undertake the care of any other patient until the quarantine period, suitable to the particular illness, has elapsed.

PREVENTION OF INFECTIOUS DISEASES.

In the Prevention of Infectious Diseases, a share of the responsibility belongs to Patient, Nurse, and State. Tuberculosis of Lungs and Typhoid Fever may be used to demonstrate the methods available for this purpose, the contrast serving to bring out clearly that the duties of Disinfection, which devolve primarily on the State, may in the next instance rest principally either on the Patient (Tuberculosis), or on the Nurse (Typhoid).

TUBERCULOSIS OF LUNGS.

A.—Duties of Patient.

(1) *During cough*, cover mouth with handkerchief. Expectorate into pocket spittoons with disinfectant.

(2) *Sputum* into drain after disinfection.

(3) *Personal linen* changed **daily**, and disinfected by boiling, &c.

(4) *Bowl of Disinfectant* always available after contact with patient.

(5) All Feeding and Nursing *Utensils* reserved and disinfected *at once*.

(6) Complete *Cleansing, Disinfection, and Renovation* of Sick-room.

TYPHOID FEVER.

B.—Duties of Nurse.

(1) *All Excreta* passed direct into bedpan which contains disinfectant and is fitted with lid. Special protection of *mattress* is essential.

(2) *Excreta* into drain after disinfection.

(3) *Bed and personal linen* changed **immediately** when soiled and placed in disinfectant *at bedside*.

C.—Duties of State.

- (1) Control of all Buildings—site, soil, subsoil, drainage, &c.
- (2) Control of Home—esp. ventilation and cleansing.
- (3) Control of Bed-rooms—esp. overcrowding at night.
- (4) Control of Food supply—esp. Milk and Water.
- (5) Complete Disinfection of Home, after recovery.
- (6) Provision of Hospitals, Sanatoria, &c.

Revision of Disinfection.

Asepsis signifies freedom from germs and their poisons;
Antisepsis, the active steps necessary to procure Asepsis.

Hands.

Soap and water; Corrosive Sublimate, Carbolic, Lysol, &c., solutions. Scrub hands with nail brush and place in solution (strength as above) for at least two minutes, or while 100 is slowly counted.

Instruments.

Boiling: solutions as for hands, *except* Corrosive Sublimate. Application at least twenty minutes.

Thermometer.

Rinse in boiled water *after* soaking twenty minutes in chemical solution, as above.

Drains.

Chloride of Lime (1 in 100); Carbolic Solution (1 in 20).

Excreta.

As for drains, but application at least sixty minutes.
An alternative method, *when drainage is defective*, is to mix sawdust freely with excreta, add paraffin and burn.

CHAPTER VII.

DUTIES OF NURSE.

When we considered the Principles of Home-Nursing, we summed up the Duties of a Nurse as a whole. We must now analyse them and consider them in their intimate relation to the Patient, Doctor, Relatives (Visitors) and Herself. For the variations of these General Rules during convalescence see p. 68.

I.—DUTIES TOWARDS PATIENT.

A Skilful Nurse is CONSISTENT in her care of Patient.

C Cleanliness. A Nurse accepts amongst other things full responsibility for the *Cleanliness of the Sick-room* (see p. 17). She also appreciates the importance of and pays special attention to the personal *Cleanliness of the Patient*—his body, his hands, his teeth, face and hair. Lastly, she knows that the prime danger of Infection is to herself, and she cultivates *Cleanliness towards Herself* as carefully as towards the Patient.

O Observation. The more serious the illness, the greater is the need of Observation; and the more exact the powers of Observation, the more valuable are the services of the Nurse. All the receptive

Senses, therefore—Tongue (taste), Eyes, Ears, Nose (smell), Skin (touch)—must be kept ever on the alert.

N Nourishment. The importance of the food of the patient has been shown under “Diet” (p. 31). It will suffice to emphasize here that nourishment must be inviting, nutritious, digestible and available.

S Sleep. While he sleeps, the patient obtains strength to combat his illness. *Sleep is in most illnesses more important than even food and medicine*, and should not be disturbed on any pretext. Full advantage, however, must be taken of the waking moments for proper and regular administration of food, medicine, &c., and for the necessary nursing manipulations. For the Causes of Sleeplessness, &c., see p. 80.

I Infection. A Nurse is responsible for carrying out all the Rules of Disinfection, and should remember that the danger of Infection may be to the *Patient*, e.g., when suffering from Tuberculosis of the Lung, he is allowed to swallow his sputum and so infect the bowel; to *Relatives*, e.g., when they kiss the lips of a child recovering from Diphtheria; and to *Herself*, e.g., when, without disinfecting her hands, she partakes of food immediately after changing the soiled sheets of a Typhoid patient.

S Skill. All *manipulations*—feeding and nursing—must be performed with a minimum of pain and discomfort to the patient, and the secret of success

is to have everything ready at the outset. Further, *words, looks, and gestures* may be equally harmful and must at all times be kept under control.

T Temperature. The *Temperature of the Sick-room* is important for ventilation, and the thermometer must be handy, and consulted at regular intervals. Also, the *Body Temperature of the Patient* must be checked by means of the clinical thermometer and recorded on the chart at regular and fixed intervals.

E Encouragement. *The mental aspect is important in the treatment of disease.* A cheery word, a hopeful smile, or a sympathetic touch may prove more effectual than the most skilful nursing. The attitude must be kind, though firm if necessity arises.

N Noise. Noise of any sort—creaking boots, slamming doors, rustling skirts, &c.—is harmful if it disturbs the rest and quietude of the patient. Undue silence, however, may distress and irritate.

T Trust. *Faith is necessary for cure;* and unless a Nurse is deemed worthy of Trust, her usefulness is limited. A patient's secrets should be as safe with the Nurse as they are with the Doctor. "*Observe everything; say little,*" is an ideal motto for both.

II.—DUTIES TOWARDS DOCTOR.

A Skilful Nurse is TRUSTED by the Doctor.

In her relationship to the Doctor, a Nurse should be—

- T Trusted.** *Obedience to Orders* is the first duty towards the Doctor. Unless these are carefully carried out, complete Trust is impossible, so that the patient's best interests may be sacrificed.
- R Resourceful.** *Resourcefulness in performing orders* is the second duty. This may tax severely the skill of a Nurse, especially when she has to deal with a capricious patient.
- U Untiring.** As a Nurse must be *Untiring for the Patient's welfare*, so she must be *Untiring in co-operation with Doctor*, who requires her assistance throughout the varying stages of the illness.
- S Skilful.** The value of a Nurse's services depends to a great extent on her Skill in the various manipulations associated with her duties, e.g., washing patient, bed-making, &c.
- T Tactful.** Tact and thoughtfulness in anticipating the requirements of the Doctor will be appreciated and may save much valuable time. Thus, preparations for his visit should always be made in advance.
- E Exact.** Thoroughness and accuracy in a Nurse's reports are the more important because treatment may depend on the details supplied, e.g., Chart. In other words, *Exactness is the demonstration of the powers of Observation.*
- D Discriminating.** Discrimination in the reports is also essential, though it is better to report too much than too little. Thus, some slight change in a case of Typhoid Fever may have a grave significance.

III.—DUTIES TOWARDS VISITORS.

A skilful Nurse is TACTFUL towards Visitors.

The Relatives are often a constant source of trouble to Doctor and Nurse, especially when they visit the Patient. A tactful Nurse can regulate these disadvantages and must bear in mind the following points.

- T Time of Visit.** No visitors should be admitted *at or about* the times appointed for food, rest, or sleep.
- A Attitude during Visit.** The attitude of visitors must be quiet, calm, optimistic, and controlled. An excitable person can do much harm and cause an alarming rise of body-temperature.
- C Conduct during Visit.** The visitor must enter the Sickroom quietly and occupy during his visit a seat from which he is easily visible to the patient. He must not sit on or shake the bed, and must make his departure as quiet as his entry.
- T Topics during Visit.** The topics of conversation may affect the patient. The visitor, therefore, must avoid irritating, exciting, or depressing subjects.
- F Frequency of Visit.** As a general rule, the less frequent the visit the better for the patient, who is thereby protected from worry and excitement.
- U Utility of Visit.** The visit may be *beneficial* or positively *harmful*. It is well to postpone decision and to judge by the effects presented 20-30 minutes after the visitor leaves.
- L Length of Visit.** The length of the visit is decided by the effects. If the patient brightens up and does not exhibit signs of undue fatigue later, then a prolonged visit may be justified.

IV.—DUTIES TOWARDS HERSELF.

A skilful Nurse is CAREFUL of her health.

Health and strength are necessary for the *physical* exertion and *mental* strain and responsibility of Nursing. A wise Nurse, therefore, remembers the importance of the following factors with reference to her own health.

C Cleanliness. The necessity for *Personal Cleanliness*—as to body, hair, teeth, &c.—is as important to Nurse as to Patient. The need of *Professional Cleanliness*—viz., in washing hands, in use of disinfectants, in keeping all appliances clean, &c.—is equally important, more especially in Infectious Diseases and after handling septic wounds.

A Appetite. Health depends on a good Digestion, and the latter is controlled by the Appetite. An inviting tray of food in pleasant surroundings is as necessary for the Nurse as for the Patient, and will influence appetite.

R Rest. Sleep and rest are essential to health. The Nurse must, therefore, have a separate bed-room, well aired and well ventilated. Further, dressing-gown and slippers must be available for emergency night-work.

E Exercise. Regular exercise is conducive to health. The minimum period off-duty should be two hours, of which at least one hour should be spent in the open air. Walking results in good exercise.

F Food. The Nurse must *never* go on duty *tired and hungry*. If she does, and if she is attending to

a patient suffering from an Infectious Disease, then she will incur unfair and increased dangers of Infection. For the same reason, no food should be taken in the Sick-room.

U Uniform. The **A**pron should be clean and ample in size. The **B**oots (or shoes) must be moderately strong to support the feet, since loose slippers favour the development of flat foot. The **C**ap, **C**ollar and **C**uffs should be plain, clean and fresh. Lastly, the **D**ress should be made of some plain, washable material and should not be spoiled by a long skirt.

L Leisure. Although this is generally included in the hours allotted to Rest and Exercise, yet some leisure time is valuable because of its beneficial effects on the health and temperament of the Nurse.

CHAPTER VIII.

DETAILS OF NURSING.

I.—WASHING PATIENT.

Cleanliness, so necessary to health, becomes essential to recovery in sickness. Washing the patient (for Effects, see p. 64) is necessary once (or twice) a day and is usually best done in the early morning after the patient wakes.

(1) Rules of Washing.

i. *Everything must be ready to hand at the outset.* For example, blankets, soap, towels, flannel, &c. This saves time and avoids undue exposure of patient.

ii. *The washing must be carried out systematically.* The adoption of a definite system facilitates the work. Thus, it is well to wash the face and neck first, then each limb separately one after the other, then the body, and lastly the back. The teeth and the hair must not be neglected.

iii. *The washing, once begun, must be completed.* It is well to complete the task at once—quickly, yet efficiently—except when unusual circumstances arise.

N.B.—A bottom (washing) blanket, *beneath* patient, will protect the bed. A top (bath) blanket, *above* patient, will permit the performance of all manipulations under cover and will calm the fears of a sensitive patient. This Blanket-Bath is most suitable when *Tepid Sponging* is ordered.

(2) Back Toilet.

With the Back the effects of Pressure are added to the needs of Cleanliness. The resulting danger—viz., Bed-sore—is avoided as follows:—

1st, *Wash well with soap and water.* The alkali of the soap dissolves the fatty *secretions* and the friction removes the *excretions* of the skin.

2nd, *Dry thoroughly with towel.* The massage accompanying the necessary movements will stimulate the superficial circulation.

3rd, *Rub freely with spirit.* The spirit (to which a little oil may be added) will harden the skin by absorbing moisture.

4th, *Apply some dusting powder.* A compound powder (e.g., Zinc Oxide, Starch and Boracic) will be cool, soothing, and antiseptic, and, rubbed well in, will be welcomed by patient, and will further stimulate the skin.

II.—BED-MAKING.

Three cotton sheets (upper, lower, draw) and three new blankets (one lower, and two or more upper) will usually be required. Like the Sick-room, all bedclothes must be *dry, well-aired, and clean.* In addition, they must be large enough to be well tucked in all round bed.

(1) Advantages of Draw-Sheet.

- i. Protects lower sheet and mattress from soiling.
- ii. Easily removed if stained and soiled with excreta.
- iii. Comforting to patient, because cool sheet always available.
- iv. May be augmented with mackintosh sheet.

(2) Changing Sheets.

Upper Sheet changed by *withdrawal*, either lengthwise or top to bottom.

Lower Sheet changed by *rolling* sheets lengthwise or top to bottom.

Draw Sheet changed by *rolling* sheets lengthwise or by *withdrawal* of dirty sheet when pinned to clean.

III.—BED-SORES.

Bed-sores are painful ulcers that may arise during long confinement to bed, especially on bony prominences. They are in most instances preventible, except perhaps in extreme cases of paralysis and exhausting diseases.

(1) Causes.

- i. Prolonged Pressure—especially shoulders, buttocks, heels.
- ii. Crumpling of lower sheet and Crumbs of food, &c.
- iii. Moisture—especially incompetence of bladder and bowel.
- iv. Neglect of Cleanliness of back. (See Back Toilet.)

(2) Prevention.

- i. Attention to Cleanliness, especially daily Washing, &c.
- ii. Variation of Posture and avoidance of supine position.
- iii. Skill and care in Bed-making and removal of crumbs.
- iv. Use of Water-bed which ensures variation of pressure.

(3) Treatment.

Report to Doctor and ask for instructions, pending which the patient may be placed on water-bed.

IV.—BATHS.

Baths are essential to cleanliness, and, unlike Air, they produce changes in the Body-Temperature, because immersion checks perspiration and evaporation.

(1) Objects of Baths.

- (i) To remove surface impurities of skin.
- (ii) To prevent clogging of pores of skin.
- (iii) To produce tonic action on Nervous and Circulatory Systems.

(2) Varieties and Duration of Baths.

(i) Cold Bath	...	65°-85° F.	} Cold plunge or sponging most effectual. With these three the maximum duration should be 5 minutes..
(ii) Tepid Bath	...	85°-95° F.	
(iii) Warm Bath	...	95°-104° F.	
(iv) Hot Bath	...	102°-110° F.	} Increased rate of Heart-beat, Respiration, &c. 20 minutes.
(v) Vapour Bath	...	110° F.	
(vi) Wet Sheet Pack:			} followed by wrapping of patient in hot blankets.
Cold	...	—	
Hot	...	Water at 110°	

Note.—The range of Temperature of Warm and Hot Baths coincides with the graduations of the Clinical Thermometer (95°-110° F.).

(3) Effects of Baths.

Hot Baths dilate blood-vessels and give rise to a sensation of warmth, followed by a reaction with sense of chilliness.

Cold Baths contract blood-vessels and set up a sensation of cold. If not unduly prolonged, they are followed by feeling of warmth.

Warm and Tepid Baths have a local action on skin only, and are not accompanied either by a reaction or by alteration of Body-Temperature.

V.—ENEMATA.

An **Enema** is a liquid injected into the rectum, either to stimulate action of the bowel or to be retained. For the former, quantities of from $\frac{1}{2}$ to 4 pints are injected, usually by a Higginson syringe; for the latter purpose, 4 oz. is the maximum quantity, its injection being effected by a small glass or rubber syringe.

(1) Administration of Enemata.

The patient is usually placed on his side at edge of bed, which is protected by towel and mackintosh. The Higginson syringe is filled with fluid and its nozzle, properly lubricated, is passed *upwards and backwards* through the anal opening—care being taken that its valvular end is *throughout* retained in the liquid. The anus may be injured by careless or rough movements.

The injection is then accomplished *slowly* by successive squeezes of bulb of syringe until required quantity has been introduced or the patient complains of feeling of distension. The liquid must be raised to temperature of body and introduction of air avoided.

(2) Varieties of Enemata.

- (i) *Purgative*—Soap and Water, Olive or Castor Oil, in quantities up to 4 pints; Glycerine, up to $\frac{1}{2}$ ounce. Enema retained as long as possible.
- (ii) *Nutrient*—Eggs, Peptonized milk, beef-tea, &c. Enema is retained and quantity restricted to 4 ounces. Chief indications are Exhaustion and Inability to swallow.
- (iii) *Medicated*—Essentials as for Nutrient. Various indications, e.g., astringent (starch and opium) for Diarrhœa; stimulant, Brandy; parasiticide (Quassia or Salt solutions) for Threadworms.

VI.—ALCOHOLIC STIMULANTS.

Alcohol, properly administered, is both food and stimulant. It is the product of fermentation which results from the action of yeast upon certain sugars, e.g., grape and milk sugar.

(1) Effects of Alcohol.

- (i) *Small and repeated doses* of Alcohol — well diluted—act as **food** in that, being easily assimilated, they assist the stomach (the functions of which are in Sickness markedly handicapped) in the processes of Digestion and Absorption.
- (ii) *Medium and periodical doses*—moderately diluted—act upon both Brain and Heart, and are valuable as a **stimulant**. At the same

time these dilate the blood-vessels, giving rise to increased exudation and evaporation. These harmful effects, however, are minimized if (1) the patient is kept warm in bed and (2) if the alcohol is given with food.

- (iii) *Large and excessive doses*—often repeated—act like a **poison**, viz., they paralyse the nerves, alter the blood corpuscles, harden and destroy all tissues, especially those of Brain, Kidneys and Liver.

(2) Administration of Alcohol.

Alcohol is administered *on the Doctor's order only*. Further, the Nurse must in each case ask for definite instructions on the following most important points, viz.:—

M Medium. *Beer* may be used for its beneficial effects on Digestion; *Wine*, e.g., Port in Anæmia, for its effects on Circulation; *Spirits*, e.g., Brandy in Pneumonia, for its effects on the Nervous System.

A Amount. The quantity ordered must be carefully measured and accurately recorded in the Nurse's report.

L Length of Administration. The significance of this arises because the habit of Alcoholism may be developed. *If the Alcohol is treated as a medicine* and its administration limited to a fixed period, then a weak-minded patient will have no cause or opportunity to blame Doctor or Nurse.

T Time of Administration. This may have an important bearing on treatment, though, for the reasons given, Alcohol is best given with food.

VII.—ADMINISTRATION OF MEDICINE.

A skilful Nurse is **PRECISE** in administration of medicine.

Certain precautions must be borne in mind, and the fact that poisons have been given in mistake for medicine must not be forgotten. Such accidents are avoided if the following Rules are observed :—

- P** **Pour** out of bottle *with label upwards*. Do not stain or finger label.
- R** **Restrict** quantity by using medicine glass.
- E** **Examine** bottle *before and after* pouring out. The second examination will prevent many mistakes.
- C** **Clean** medicine glass, tumbler, &c., *before and after* use.
- I** **Intervals**. Keep strictly to stated intervals. Always give *after food* and do not wake patient for medicine, *except by Doctor's order*.
- S** **Shake** bottle before pouring out, otherwise any poison present may be given concentrated in last few doses.
- E** **Exclude** heat (e.g., fire) from contact with medicine, which may in consequence undergo chemical changes.

VIII.—CARE OF CONVALESCENT PATIENTS.

During convalescence the Nurse must still adhere to the General Rules (see p. 54) and be **consistent** in her care of the patient. Some variation, however, is introduced by the change of circumstances.

During Convalescence the Rules are VARIED.

- V Variety** in *diet, surroundings, and in occupation* will all tend to hasten recovery, and is particularly necessary when progress seems to cease.
- A Amusement** becomes essential to relieve the weariness of recovery. *Anything which occupies brain and hands, e.g., a puzzle, will be most acceptable.*
- R Rest**, apart from Sleep, either during morning or afternoon, will be welcome to the patient and beneficial to Nature's efforts at recovery.
- I Infection**, and the danger of Complications—e.g., in Typhoid and Scarlet Fevers—may still exist and must be carefully guarded against.
- E Exercise**, properly carried out, will still further assist by giving play to the muscles. It must, however, be graduated, and *stop short of fatigue.*
- D Dress.** The clothing must be warm and comfortable, and should aim at keeping the whole body at a uniform temperature.

IX.—CARE OF HELPLESS PATIENTS.

(1) *Lifting, raising, &c.*

One Nurse—Arm behind patient's shoulder and at nape of neck, crossing over towards small of back. Support head, neck and spine.

Two Nurses—Stand either side, hands intertwined or fingers bent and interlocked. Support shoulders and hips.

(2) *Improvised Hammocks.*

(a) Blanket rolled beneath lower sheet. Roll completed and kept open with transverse supports, e.g., two sticks.

(b) Poles rolled in length of lower sheet and blanket.

(3) *Improvised Chair-bed.*

If second couch not available—improvise with three or four straight-backed chairs, seats of which are towards bed. Level with blankets.

(4) *Improvised Bed-rests and Cradles.*

Inverted chair; pillow placed beneath knees. Cradles (three-legged stool, bandbox, child's hoop) remove weight of clothes, esp. for fractures, burns, and operation wounds.

CHAPTER IX.

LOCAL REMEDIES.

I.—EXTERNAL APPLICATION OF HEAT.

(1) **Action.**—Heat causes increased flow of blood to part and diminishes any local congestion which is present. In fact, it either disperses inflammation or hastens the formation of matter (pus).

(2) **Indications.**

(i) *Pain*—especially when due to inflammation.

(ii) *Inflammation*—whether *Acute* (Leading Signs : Pain, Redness, Swelling) or *Chronic*; whether *Superficial* (e.g., skin) or *Deep* (e.g., Pleurisy).

(iii) *Wound-poisoning*.

(3) **Essentials.**—(i) Warmth, (ii) Moisture, and (iii)—especially for open wounds—Antisepsis.

(4) **Application.**—The three outstanding rules of Application are :—

(i) *Have patient and appliances ready before starting.*

(ii) *Make poultice or fomentation on the spot.*

(iii) *Take steps to keep appliances hot throughout.*

(5) **Varieties.**—*Dry*—scorched flannels, hot-water bottle, &c.

Moist—poultices, fomentations.

A.—Poultices.

- (1) **Essentials.**—*Thickness*— $\frac{1}{2}$ -inch, retains heat, not oppressive to part.
Edges—protected by covering, neat, retains heat.
Covering—two layers lint or flannel, cotton-wool and waterproof.
Intervening muslin—inadvisable because it produces moisture, conducts away heat, and soils sheets.
- (2) **Varieties.**—Bread, Linseed, Mustard, Mixed Linseed and Mustard, Charcoal.
- (3) **Application.**—Success in preparation is proven by the Spoon Test (spoon stands erect in mass) and Clean-Bowl (sides of bowl clean when mass turned out) Tests. All poultices (except Mustard) are made with boiling water and applied directly to the skin.

B.—Fomentations.

- (1) **Essentials.**—*Thickness*—two or three layers of lint or flannel.
Covering—cotton-wool or flannel, and waterproof (jaconette).
- (2) **Varieties.**—*Plain*—lint, flannel for relief of pain.
Medicated—e.g., Boracic as *Antiseptic* ;
 Poppy Capsules as *Sedative* ; Turpentine as *Counter-irritant*.
- (3) **Application.**—Fomentations are lighter, cleaner, less painful and more simple in preparation. *Success depends on the maximum heat being combined with the minimum moisture.* All fomenta-

tions must be *thoroughly* wrung out—preferably between two sticks and opened out *freely* to admit air, which is a non-conductor of heat.

II.—LEECHES.

- (1) **Action.**—Application of leeches results in local withdrawal of blood ($1\frac{1}{2}$ teaspoonfuls per leech) and consequent relief of congestion of part affected.
- (2) **Indications.**—(i) *Pain* and (ii) *Acute Inflammation*.
- (3) **Essentials.**—Hot fomentations may be ordered to follow removal of leech and to augment its effects. Boracic lint (Antiseptic) is most serviceable.
- (4) **Application.**
 - (i) *Choice of Site.*—When possible, select a position on which pressure may, if necessary, be applied to control bleeding, e.g., over bone.
 - (ii) *Preparation of Site.*—Clean with warm water. Do not use soap. Warm milk and sugar solutions encourage leech to bite.
 - (iii) *Removal of Leech.*—Leech drops off when surfeited with blood, but may be removed by application of salt. Do not pull leech away lest teeth remain and cause inflammation, ulceration, and gangrene. Treat leech-bites as wounds with antiseptic precautions.
 - (iv) *Control of Bleeding.*—*Spontaneous arrest* of bleeding usually occurs. The wound, however, may require *pressure* with finger, with compress, with graduated compress, or with needle and thread.

III.—COUNTER-IRRITANTS.

(1) **Action.**—Counter-irritation is the production of an artificial irritation at one part to oppose and remove an irritation already existent at that spot or elsewhere. Congestion of the true skin by the irritating body is followed by exudation of serum and formation of blister beneath the outer skin. This stimulation of the local nerves is transmitted to the brain, which is in turn stimulated to action either at the same place or elsewhere.

(2) **Indications.**—(i) *Pain*, and (ii) *Chronic Inflammation*, whether *Superficial*, e.g., Sprained Ankle, or *Deep*, e.g., Bronchitis.

(3) **Essentials.**—Counter-irritants are used either (i) to redden and cause congestion of the surface, or (ii) to raise a blister. In the former case the agent must not be applied too long.

(4) **Application.**—There are three most important Rules of Application which must be thoroughly understood at the outset, viz.:—

(i) *Whether Counter-irritation or Blistering is required.*

(ii) *The Position and Length of Application of the Agent.*

(iii) *The Antiseptic precautions essential to Blister.*

N.B.—It is wise to leave the blister alone, lest the dangers of inflammation, ulceration and gangrene be realized. The best plan is to cover up with Boracic ointment.

(5) Varieties of Counter-Irritants.

- (i) *True Counter-irritants*—such as Flying Blisters—which are Fly Blisters applied to different parts for five minutes only; Mustard Poultice or Leaf, applied for five to fifteen minutes; Tincture of Iodine painted over area under treatment.
- (ii) *Blistering Agents*—such as Fly Blisters, which are applied for five to twelve hours; Blistering Fluid, the effects of which vary with the amount applied; and strong Ammonia applied by thimble for ten minutes.

IV.—OINTMENTS.

- (1) **Action.**—Ointments are composed of fatty matter, usually vaseline or lanoline, which will not decompose. They are used to carry some medicament and are applied to diseased part.
- (2) **Application.**—Ointments may be applied on lint or directly to the part. *All scabs, &c., must be removed before application.* The lint is secured in place by bandage or plaster.
- (3) **Varieties.**
 - (i) *Plain*, e.g., vaseline rubbed on after removal of poultice.
 - (ii) *Medicated*, e.g., Antiseptic (Boracic); Sedative (Zinc), and Caustic (Carbolic), &c., &c.

V.—INHALATIONS.

- (1) **Action.**—Inhalation is the breathing of air or steam prepared for diseased conditions of the throat or for absorption in the lungs.
- (2) **Application.**— *Dry* inhalation is carried out by applying some drug, or combination of drugs, to the sponge of a metal mask or respirator, which is fixed by elastic, so that the nose and mouth are covered. *Moist* inhalation is conducted by means of a special inhaler, or by burying the nose and mouth in a towel which is so wrapped round the top of a jug that a circular opening is left available for the escape of vapour. The inhaler or jug should be only half filled with boiling water.
- (3) **Varieties.**
- (i) *Plain.*
 - (ii) *Medicated*, such as Vinegar, Turpentine, Friar's Balsam, &c., the usual proportion of these drugs being one teaspoonful to the pint of boiling water.
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CHAPTER X.

OBSERVATION OF PATIENT.

The importance of **Observation** has been shown in the Principles of Home-Nursing and elsewhere. Its practical significance is further emphasized when we consider the **Symptoms**, the *causes* and *variations* of which must be carefully studied.

Symptoms are the effects of a Cause in contrast to the Signs which are the tangible evidence of a Cause. Further, if the Symptoms specified in the Text-Book be examined, it becomes apparent that these are divisible into two groups—**Subjective** and **Objective**—the latter being in point of fact Signs. Some of the latter, owing to their vital importance in the formation of conclusions as to Cause and Progress of the Case, are included in a special class as **Means of Diagnosis**.

Although, therefore, *Diagnosis and choice of Treatment are always beyond a Nurse's duties*, yet a skilful Nurse will appreciate the importance of these three distinct groups of Symptoms, and will cultivate her powers of Observation at every opportunity.

I.—SUBJECTIVE SYMPTOMS. Pain. Appetite. Thirst.**Learn the Subjective Symptoms PAT.**

P Pain—Observation is directed to the following Principal Points, and it is noteworthy that pain is always a comparative symptom.

- P. Position*—local or moving; superficial or deep.
- A. Aggravation*—e.g., food (Indigestion); movements (Pleurisy), &c.
- I. Intensity*—slight or severe; transient or progressive.
- N. Nature*—darting (Neuralgia); gnawing (Rheumatism) and cutting (Pleurisy).

And *Effects of Remedies*—heat or cold; movements or rest; elevation or depression of part.

A Appetite—*This indicates the state of the Digestive and Nervous Systems*, and the following Principal Points must be observed (See Sleep):—

Nature—perverted; capricious; natural.

Amount—deficient; excessive.

Effects of Food—satisfying; digested; accompanied by pain, flatulence, nausea and vomiting.

T Thirst—*This indicates the state of the blood (Circulatory System)*, and is a sensation due to changes in the blood consequent upon an inefficient supply of liquid in the body.

The Principal Points are:—

A. Causes.

- (i) Fevers and Inflammation — poisoning and concentration of blood.
- (ii) Exhausting Diseases — poorness of blood.
- (iii) Profuse Perspiration — loss of fluid of blood.
- (iv) Articles of Diet — e.g., salt, alcohol, &c., cause concentration of blood.

B. Remedies.

- (i) Fluid in stomach —
Weak tea or coffee (tepid).
Oatmeal or rice water (tepid).
Currant or raspberry juices.
Slightly acid drinks.
- (ii) Fluid in large bowel — rectal enema.

II. — OBJECTIVE SYMPTOMS.

Sleep. Vomit. Rigor. Expectoration.

Be SURE of the Objective Symptoms.

S Sleep. *This indicates the State of the Nervous System.*
Rest is necessary for all vital functions and sleep may be a sign either of exhaustion or of improvement. The following are the Principal Points (See Appetite):—

Nature—intermittent: broken by dreams, talking, movements, &c.

Amount—deficient; excessive. An exact record must be kept.

Effects—satisfying and refreshing or vice versa.

Sleeplessness. *This indicates disturbance of Nervous System.*

A. Common Causes—

- | | | |
|-------------------------------------|---|--|
| (i) Mental Excite-
ment. | } | Nos. i and iii increase
supply of blood to
brain; No. ii causes
fatigue of nerve cells. |
| (ii) Physical exhaus-
tion. | | |
| (iii) Coldness of ex-
tremities. | | |

B. Simple Remedies—

- | | | |
|---|---|--|
| (i) Cold applications
to head. | } | All act by diminishing
the supply of blood
to the brain. |
| (ii) Hot-water bottle
to feet. | | |
| (iii) Food in stomach
e.g., biscuit. | | |
| (iv) Repeated deep
inspirations. | | |

N.B.—The hot-water bottle must *always* be well protected, especially when patient is unconscious or paralysed. Otherwise serious burns may result.

V Vomiting. *This indicates disturbance of Digestive or Nervous Systems.* The act of vomiting consists of deep inspiration, closure of glottis, contraction of abdominal muscles, and expulsion of stomach contents. Compare Coughing.

A. *Causes of Vomiting—*

(1) *Local (Gastric)—*

- (i) Irritation of stomach (food, secretions).
- (ii) Disease of stomach (ulcer, cancer, &c.).
- (iii) Obstruction of bowel.
- (iv) Poisoning.

N.B.—In these cases there are usually present nausea, retching, furred tongue—and the vomiting gives relief.

(2) *Central (Cerebral)—*

- (i) Direct—e.g., poisoning of blood in disease.
- (ii) Reflex—e.g., worms.

N.B.—Nausea and retching usually absent, and there is no feeling of relief.

B. *Principal Points—*

- (i) Time—Frequency, quantity.
- (ii) Cause—e.g., its relation to food, straining, &c.
- (iii) Character of Vomiting—e.g., associated with pain, flatulence, nausea, &c.
- (iv) Effects of Vomiting—exhaustion or relief.
- (v) Nature of Vomit—undigested food, blood (coffee grounds), &c.
- (vi) Effects of Remedies—decreased in quantity or frequency, longer intervals after food, less pain, flatulence, nausea, &c.

R Rigor ("stiff coldness"). *This indicates disturbance of Nervous System.* It is associated with an abrupt rise of Temperature and is usually the first symptom in Fever and Inflammation. *Before and during rigor* there is a feeling of extreme coldness.

A. Principal Points—

Time, Duration and Degree of Perspiration.

B. Treatment—

Bed, Blankets, Hot-water Bottles, Warm Drinks, Doctor.

E Expectoration. *Coughing indicates disturbance of Respiratory or Nervous Systems.* The act of *Coughing* consists of deep inspiration, temporary closure of glottis, contraction of abdominal muscles, forced opening of glottis, and expulsion of air from lungs.

N.B.—Compare Causes and Principal Points of Vomiting.

A. Causes of Coughing.

(1) Local (Pulmonary)—

- (i) Irritation of lungs, e.g., mucus.
- (ii) Disease of lungs, e.g., Bronchitis.
- (iii) Obstruction of air passages, e.g., foreign body.
- (iv) Poisoning, e.g., strong ammonia, &c.

(2) Central (Cerebral)—

- (i) Direct—Brain disease.
- (ii) Reflex—Stomach disease.

B. Principal Points of Coughing and Expectoration.

- (i) Time. Frequency. Severity.
- (ii) Cause, e.g., its relation to posture, cold air, &c.
- (iii) Character of Cough—
 - Dry or loose with expectoration—
Bronchitis.
 - Short, hacking; deep, distressing—
Tuberculosis.
 - Hoarse (cow - cough) — Laryngitis,
Diphtheria.
 - Paroxysmal—Whooping Cough.
- (iv) Effects of Cough—exhaustion or relief.
- (v) Nature of Expectoration—
 - (a) Scanty—early Bronchitis.
Profuse—Chronic Bronchitis, Tuberculosis, &c.
 - (b) Mucous—Catarrh, early Bronchitis.
Purulent (mattery)—Bronchitis.
Bloody and heavy (lung tissue)—
Tuberculosis.
Putrid—rare lung diseases.
- (vi) Effects of Remedies—
 - Alleviation, especially at night.
 - Attacks less frequent and prolonged.
 - Expectoration diminished in quantity.

Note.—The word **ECCENT** covers the Principal Points applicable to Vomiting and also to Coughing, i.e., **Effects of Vomiting, Cause, Character of Vomit, Effects of Remedies, Nature of Vomit, Time, &c., of vomiting.**

III.—MEANS OF DIAGNOSIS.

Skin. Pulse. Respiration. Attitude. Tongue. Temperature.

Nurse SPRATT knew the Means of Diagnosis.

S Skin. *This indicates the State of the Circulatory and Nervous Systems.*

Principal Points (Compare Tongue)—

- (1) *Colour.*—**Red** (Fever); **White** (Syncope, Collapse); **Blue** (Asphyxia, Coma); and **Yellow** (Jaundice).
- (2) *Degree of Moisture.*—Like pain, this is of comparative value only: Dry—Fever; Moist—Rheumatic Fever and Tuberculosis of Lungs.
- (3) *Surface.*—Eruptions in Infectious Diseases.
- (4) *Effects of Remedies.*—Tepid sponging reduces Temperature and makes skin less dry.

P Pulse. *This indicates the State of the Circulatory and Nervous Systems and teaches—*

- (i) The force and condition of **Heart**.
- (ii) The fulness and condition of **Arteries**.
- (iii) The excitability of the **Nervous System**.

Principal Points (compare Respiration)—

- (1) *Strength.*—Small, thready (Exhaustion); hard (Kidney disease); full, bounding (Inflammation, Fever, and Hæmorrhage).
- (2) *Regularity* in strength and rate.
- (3) *Rate.*—Adults, 72 per minute; youth, 80; children, 96.

Pulse Taking.—Best taken at wrist (radial). Use *tips* of second and third fingers ; keep patient calm and make him rest arm on bed or table ; first note strength and regularity of pulse, then count rate for a *full* minute.

N.B.—The normal ratio of Pulse to Respiration is 4 : 1.

R Respiration. *This indicates State of Circulatory, Nervous, and Respiratory Systems.*

Principal Points (see Pulse)—

- (1) *Strength.*—Feeble and Shallow (Shock) ; deep and laboured (Apoplexy).
- (2) *Regularity* in strength and rate.
- (3) *Rate.*—Adults, 18 per minute ; youth, 20 ; children, 24. Slow (Shock) ; rapid (Pneumonia).

Respiration Taking.—Always take patient unawares. Inspiration and expiration are *one* respiration ; count for one minute by sight, placing hand on abdomen as last resource.

N.B.—(i) Proper aëration of blood impossible if respirations less than 8 and more than 40 per minute.

(ii) Pulse and Respiration vary with age, posture, exercise, disease, &c.

A Attitude. *This is important as Means of Diagnosis and as Guide to Progress.* Further, its significance in prolonged Fevers is noteworthy on account of the dangers of Congestion of Lungs, Bed-sores, and Foot-drop.

A—Principal Points of Attitude—

Horizontal Posture occurs in Exhaustion after long illness.

Raised Posture occurs in Diseases of Lungs and Heart.

Lateral Posture occurs in Pleurisy (free action of unaffected lung).

Semi-flexed Posture occurs in Peritonitis (any pressure distresses).

Prone Posture occurs in Renal, Biliary, and Intestinal Colic (pain eased by pressure).

B—Treatment. *Study comfort and help maintain position of ease.*

Raised Posture maintained by Bed-rest, Bed-rope, Pillow under knees.

Lateral Posture maintained by Pillow in small of back.

T Tongue. *This indicates State of the Digestive System.*

Principal Points (compare Skin)—

(1) *Colour.*—**Red** (Fever); brown (Typhoid).

White and furred in Indigestion;
pale, flabby in Anæmia.

Blue, swollen (Asphyxia).

(2) *Degree of Moisture.*—Dry, cracked (Influenza, Typhoid).

(3) *Surface.*—Furred (Indigestion); strawberry (Scarlatina); swollen and tooth indented (Constipation).

(4) *Effects of Remedies.*—Improvement in colour, moisture and surface; cleans first at tip and sides.

- (5) *Movements*.—Protruded with difficulty (Apoplexy, Fevers); protruded to one side (Apoplexy).

T Temperature.—*This indicates State of Circulatory and Nervous Systems.*

Principal Points—

- (1) *Means of Registering*.—Clinical Thermometer.
- (2) *Sites of Registering*.—The sites selected are practically closed cavities in which the blood-vessels are superficial.
 - (i) Mouth.—Place thermometer under the tongue *with lips tightly closed*. Never register immediately after hot or cold food has been taken.
 - (ii) Armpit. — Wipe out armpit and place patient's *hand on opposite shoulder with elbow pressed against body*.
 - (iii) Rectum.—Reliable if bowel empty, otherwise fæces may prevent contact of thermometer with walls of rectum.
 - (iv) Groin.—Least satisfactory. Thigh must be pressed on abdomen.
- (3) *Time of Registering*.—Periods vary with thermometer, but most accurate results are obtained if time is prolonged—5 to 10 minutes.
- (4) *Means of Recording*.—Record accurately on Chart.

CLINICAL THERMOMETER.

The outstanding peculiarities of the Clinical as distinct from Room or Bath Thermometers are that the former is—

S Small. It can be carried in the waistcoat pocket.

S Self-registering. The mercury is contained in the bulb, and a small portion is cut off from the rest by two constrictions in the tube. This portion remains permanently above the upper constriction, and, if it should be shaken into the bulb, then the utility of the thermometer is lost. By this device, any rise of Body-Temperature *remains as registered for any length of time*, and is not subject to changes of external atmosphere. The thermometer can *only* be re-set by shaking the mercury down.

S Specially-graduated. The *range of temperature* is 95° to 110° F., which coincides with that of Warm and Hot Baths. *Each degree* is subdivided into $\frac{1}{5}$ ths. *The figures presented* are 95, 100, **5**, 110, and an arrow at 98·4 to indicate normal temperature. The *time* of the thermometer is usually plainly marked on the back.

CHARTING.

Charts are prepared by the Nurse for the Doctor, and *are best kept away* from the Patient. Various kinds are available for registering the Body-Temperature, some being figured for morning and evening records, others every four hours, &c., &c.

Summing up the Principal Points of Charting we find that a Chart (like a Roller Bandage, see p. 90) must be—

(1) **Effective.** The effectiveness of the Chart depends on its completeness. Therefore, the Chart must record not only the range and time of the *temperature* but also those of the *pulse* and *respiration*. Further, the *natural functions* (e.g., urine, bowels), and any outstanding *symptoms* (e.g., rigor) or *treatment* (e.g., tepid sponging) should also be recorded.

(2) **Neat.** Neatness is attained by making all figures, letters, &c., small and distinct, by using printed characters where possible, and by always ruling the lines which connect the dots of the temperature.

(3) **Correct.** Correctness depends on the powers of Observation of the Nurse. The temperature is recorded by *small* dots, placed accurately on the equivalent line of the Chart and connected by *ruled* lines. The resulting curve is typical in many diseases.

CHAPTER XI.

ROLLER BANDAGE.

CORRECT Bandaging is Essential to Home-Nursing.

Roller bandages are lengths of cloth, varying in width, length, and also in material, e.g., linen, calico, gauze, &c. They are used for two main purposes—the Comfort of the patient and the Control of the part affected.

I.—SIZE OF BANDAGES.

Average width and length, 1 inch wide, 3 yards long, for **Fingers**.

Average width and length, 2 to 3 inches wide, 6 yards long, for **Head and Limbs**.

Average width and length, 4 to 6 inches wide, 8 yards long, for **Chest and Abdomen**.

II.—UTILITY OF BANDAGING.

(1) Comfort of Patient.

- (i) To keep injured parts at rest.
- (ii) To support injured parts, e.g., slings, &c.

(2) Control of Part.

- (i) To control bleeding by pressure.
- (ii) To control and fix fractures and splints.
- (iii) To control dressings and cover wounds.

III.—REQUIREMENTS OF BANDAGING.

The correct application of bandages requires much patience, practice and experience, because it must be—

- (1) **Effective**—that is, attain its objects of Comfort and Control ;
- (2) **Neat**—that is, upper and lower *edges* must lie flat ; *turns* must be symmetrical ; *reverses* must follow straight lines ; and *ends* must be secured.
- (3) **Correct**—that is, the accepted *Rules of Roller Bandaging*, which may be thus epitomized, must in every instance be carried out.

C Keep bandage under **Control** throughout, i.e., *at the start, during and at the conclusion* of its application.

O Stand **Opposite** to patient and *use either hand—* i.e., right hand for left limb and vice versa.

R **Restrain** and fix bandage *at start and conclusion* of application.

R Keep line of **Reverses** *in straight line* and also *on outside of limb*.

E Bandage **Elbow** (and all joints) *in final position* of limb.

C **Carry** bandage from *within out* and from *below up*.

T Make each **Turn** overlap two-thirds of previous Turn.

IV.—METHODS OF BANDAGING.

- (1) **Spiral.**—Series of oblique circles of part of limb; suitable for **fingers**.
 - (2) **Reverse.**—Combination of oblique circles and complete folding of bandages (Turns) round limb; suitable for **upper and lower limbs**.
 - (3) **Figure of Eight.**—Series of loops which cope with any irregularity of surface, and ensure Correctness of bandage; suitable for **joints**.
 - (4) **Spica.**—A combination of the previous three methods—that is, a spiral bandage with reversed turns, forming a sort of figure of eight, the peculiarity of which is that one loop is larger than the other; suitable for union of limbs to trunk of body—e.g., **shoulder, groin, and also thumb**.
-

SUMMARY OF AIDS.

Air of Sick-room ...	Contamination ...	Crop.
Alcoholic Stimulants	Administration ...	Malt.
Clinical Thermometer	Principal Points...	3 S's.
Convalescence ...	Care of	Varied.
Diet of Patient ...	Requirements ...	Invalid.
Dress of Nurse ...	Uniform	A.B.C.D.
Duties of Nurse ...	Towards Patient	Consistent.
	Towards Doctor	Trusted.
	Towards Visitors	Tactful.
	Towards Herself	Careful.
Home-Nursing ...	Objects	4 P's.
	Principles	True to Con- tract.
Infection	Paths	3 B's.
Infectious Disease ...	Characters	Acute.
Medicine	Administration ...	Precise.
Pain	Principal Points...	Pain.
Roller Bandage ...	Requirements ...	Correct.
Symptoms	List of Subjective	Pat.
	„ Objective	Sure.
	„ Means of	Spratt.
	Diagnosis	
	Principal Points of	Eccent.
	Subjective and	
	Objective	
Ventilation	Principles	Pure.

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FINIS.

FOODS, DRUGS, &c.

Barley Water.—Mix one dessertspoonful of Robinson's "Patent" Barley with a wineglassful of cold water into a smooth paste. Pour this into a stewpan containing one quart of boiling water and stir over the fire for five minutes. Flavour with lemon and sugar, either or both, or with lime juice or lemon squash according to taste, allow the mixture to cool, and strain off the barley sediment. For invalids requiring nutriment a larger quantity of barley should be used, and the straining of sediment omitted, or not, as directed by the doctor.

Gruel.—Take of Robinson's "Patent" Groats one tablespoonful, mix with a wineglassful of cold water, gradually added, into a smooth paste, pour this into a stewpan containing nearly a pint of boiling water or milk, stir the gruel on the fire (while it boils) for ten minutes; pour it into a basin, add a pinch of salt and a little butter, or if more agreeable some sugar. When gruel is made for an invalid, butter had best be omitted.

Iodex is a preparation of free iodine, which neither stains nor irritates the skin—a great advantage. Iodex is made by the well-known firm, Menley and James, of Menley House, Farringdon Road, E.C. It is recommended by a very large number of the medical profession in cases of gout, rheumatism, arthritis, enlarged and tuberculous glands, goitre and parasitic skin diseases. It has also been found applicable in widely differing conditions, such as sprains, stiffness, sciatica, chilblains, ringworm, &c., and as a powerful surgical antiseptic for painless dressing of wounds. It has been supplied to H.M. Fleet Surgeons, R.A.M.C. Surgeons, Red Cross Surgeons, Croix Rouge Française, Belgian Field Hospitals, French Field Hospitals, and numerous Military Hospitals. Iodex is employed with marked success throughout the Services.

There are staining and irritating imitations of Iodex; these are, in many conditions, dangerous.

Oxo.—One of the promptest responses to the Government appeal for meat economy came from the great public institutions, which are now using *Oxo* more than ever in place of beef tea.

The change is approved not only by Treasurers, but by modern medical opinion. Previously, the difficulty of obtaining uniformity in home-made beef tea has always been great; to-day, by reason of the extreme pressure on nursing staffs everywhere, that difficulty is intensified almost to the pitch of impossibility. It is here *Oxo* comes to the rescue. It can be made in a moment, no waiting, no waste, no doubt about the quality or consistency.

In composition *Oxo* is actually superior to beef tea because, in addition to the stimulating extractives, it also contains the nourishing fibrin of beef. *Oxo*, therefore, besides being more convenient and more economical, is also superior dietetically. With these advantages to its credit it is easy to understand the continually increasing use of *Oxo* in so many branches of nursing.

Thermogene is a wadding of special make and of undoubted value in cases of rheumatism, lumbago, pleurisy, and similar affections. Not only is it effective, but it acts rapidly, giving relief from pain and ease in a very short time. The medical profession and nurses speak very highly of it, while the most enthusiastic in its praise are those who have tested it personally. In addition it has three other points in its favour which will recommend it to all, it is *safe*, it is *inexpensive*, it is *easy of application*; lastly, it is obtainable at all chemists'.



Lecture Notes

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